

# **AIDS in the County of Orange**

## **HIV Programs**

### **Introduction**

This document describes the sociodemographic profile of the Orange County, California Eligible Metropolitan Area (EMA), as well as the epidemiology of the Acquired Immune Deficiency Syndrome (AIDS) and Human Immunodeficiency Virus (HIV) infection within the EMA.

Specifically, it includes a geographic description of the EMA, a sociodemographic description of the population, and reported AIDS cases by selected demographic variables with analyses over time. The chapter also includes analysis of prevalent cases (persons living with AIDS), estimates of persons living with HIV, a comparison of Orange County and U.S. AIDS cases, mortality analysis, years of potential life lost, and the economic impact of the epidemic. Data for clients receiving services at Ryan White-funded medical clinics and community-based organizations are described. The chapter also includes a description of HIV-antibody-testing programs within the EMA including anonymous and confidential testing programs. Finally, it includes a discussion of other diseases/conditions of possible relevance to the HIV epidemic, such as selected sexually transmitted diseases, tuberculosis and hepatitis B.

### **Community Demographics**

Orange County is a large suburban county of 31 cities and 2.75 million people, covering 798 square miles. It lies between Los Angeles and San Diego counties in southern California. The county has a population larger than 19 U.S. states and is the fifth largest county in the United States, exceeded in population only by Los Angeles County, Cook County (Chicago), Harris County (Houston), and San Diego County. Orange County has reported more AIDS cases than 26 U.S. states.

In the last two decades, the region has experienced significant demographic changes. From 1976 to 1996 the total population increased by 50%. In this period the ethnic distribution shifted from 87% White, 10% Latino, 2% Asian/Pacific Islander (A/PI) and 1% African-American to 58% White, 27% Latino, 11% A/PI, and 2% African-American. As can be seen in Figure 2-1, the White population remained relatively stable at approximately 1.5 million persons between 1976 and 1996. The significant population increase experienced in this period is primarily attributable to growth of the non-white population. Further, according to the 1990 census, 24% of Orange County residents are foreign born. Population projections for the year 2000 indicate a continuing racial and ethnic diversification for the county. In the year 2000, the population is projected to be 54% White, 31% Latino, 13% A/PI and 2% African-American. At that time, the county is projected to have grown to 2.9 million persons.

Latinos constitute the largest minority group in Orange County; slightly more than one in four persons in the county is Latino (29% of the 1999 population). Orange County Latinos are primarily of Mexican descent. Most cities in Orange County have a substantial Latino

population. Santa Ana, for example, the largest city in the county, is 69% Latino. The Latino population increased 307% from 1976 to 1996, much of this due to continuing immigration and a high fertility rate. Reflective of this, an increasing percentage of reported AIDS cases are Latino.

Also from 1976 to 1996, the A/PI population, the next largest minority group, grew by 766%; more than one in ten Orange County residents are now A/PI (13% of the 1999 population). Much of the growth in this population resulted from the influx of Southeast Asian or Pacific Islanders during the early 1980s. In particular, Orange County has the largest Vietnamese population in the United States. A/PIs continue to form a very small percentage of Orange County reported AIDS cases. A study of HIV in Orange County's Vietnamese population, funded by the Centers for Disease Control and Prevention, was conducted in Orange County in 1992 and 1993<sup>1</sup>. The project included a seroprevalence study that demonstrated seroprevalence rates among high-risk Vietnamese (7 positive of 824 tested (0.85%)) to be comparable to overall Orange County seroprevalence rates. The project also included a community survey of HIV knowledge, attitudes and risk behavior.

With a 1999 population of 43,584, African-Americans represent less than 2% of the population of the county and 4% of the cumulative AIDS cases reported through December 31, 1999. Other minority groups, including American Indians, account for 1.5% of the total population and less than 1% of reported AIDS cases.

Figure 2-2 compares the ethnic distribution of the 1999 Orange County population to AIDS cases reported in 1999. As can be seen, African-Americans and Latinos are over-represented among persons reported with AIDS; while Asian/Pacific Islanders are under-represented.

Table 2-1 illustrates some of the important differences in the demographic profile of the four major race/ethnic groups in Orange County using 1990 census data. The 1990 population was almost evenly divided between males and females, although a slightly higher proportion of both African-Americans and persons of Hispanic origin were male. (The 1990 census included a separate question for Hispanic origin; therefore, race overlaps with Hispanic origin.) The median age for county residents in 1990 was 30.4 years – 29 years for males and 32 years for females. Age distribution varied by race/ethnicity as can be seen in both Table 2-1 and Figure 2-3. According to 1990 census data, persons of Hispanic origin were younger than members of other Orange County ethnic groups. Eighty-two percent (82%) of Hispanics, 80% of African-Americans, and 71% of A/PIs were under the age of 40, compared to just 58% of Whites. The median age for Hispanics was 24; eleven years lower than the median age for Whites (35). A/PIs and African-Americans had median ages of 29 and 27, six and eight years lower than the median age for Whites.

Whites and A/PIs were the wealthiest in terms of annual median household income. While only 8.5% of the Orange County population was identified to be below the poverty level in

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<sup>1</sup>"Targeted HIV Seroprevalence Among Vietnamese In Southern California," G. Gellert, D. Moore, R. Maxwell, K. Mai, K. Higgins. *Genitourinary Medicine*, 1994;70:265-267.

the 1990 census, 18.6% of Hispanics were below the poverty level as were 12.9% of A/PIs. Three Orange County cities had greater than 10% of their population living below poverty: Santa Ana, 19.1%; Westminster, 11.4%; and Garden Grove, 10.4%. Geographically, these cities are all located in the central area of the county.

**Table 2-1. Orange County Sociodemographic Profile by Race/Ethnic Origin (1990)**

	<u>White</u>	<u>African-American</u>	<u>A/PI</u>	<u>Hispanic Origin</u>
Total Population	1,556,284	43,693	240,754	561,300
Male	49%	53%	50%	54%
Female	51%	47%	50%	46%
<20	23%	35%	33%	39%
20-39	35%	45%	38%	43%
40-59	25%	17%	22%	13%
60 & older	17%	4%	7%	5%
Annual Median Household Income	\$47,353	\$39,176	\$46,139	\$35,905
Percent below U.S. Poverty Level	6.7%	9.7%	12.9%	18.6%
Education (persons 25 and older):				
High School Graduate or higher	84%	88%	81%	45%
Bachelor's Degree or higher	29%	22%	38%	8%
Employment Status (persons 16 and older):				
Of those in labor force – Employed	96%	94%	95%	92%
Unemployed	4%	6%	5%	8%
Not in labor force	27%	19%	31%	24%

More than one-half (55%) of Orange County residents of Hispanic origin who were 25 years of age or older in 1990 completed fewer than 12 years of education, compared to only 12% of African-Americans, 16% of Whites, and 19% of A/PIs. 38% of A/PIs, 29% of Whites and 22% of African-Americans had a bachelor's or higher degree. Only 8% of Hispanic residents had a comparable degree.

The 1990 census also contains data on the language spoken at home. Of those residents who reported speaking Spanish at home, 40% stated that they spoke English either “not well” or “not at all.” Residents who reported speaking an Asian or Pacific Island language at home were more likely to report a better command of the English language (only 25% spoke English either “not well” or “not at all”).

Of those residents reporting speaking “other languages” at home only 8% spoke English either “not well” or “not at all”.

Less than 10% of Orange County residents 16 years of age or older in 1990 who were in the labor force were unemployed. However, 8% of Latinos were unemployed compared to only 4% of Whites, 5% of A/PIs and 6% of African-Americans.

## The Epidemic

The first cases of AIDS reported in the United States were described in the June 5, 1981 issue of *Morbidity and Mortality Weekly Report*. Since then, more than 700,000 Americans with AIDS have been reported to the Centers for Disease Control and Prevention (CDC). As of June 1999, more than one-half (59%) had died.

Orange County has reported more AIDS cases than 26 U.S. states and ranks 29<sup>th</sup> in number of AIDS cases reported among the 100 metropolitan areas with 500,000 or more population recognized by the CDC. Table 2-2 presents cumulative AIDS cases reported through June 30, 1999 for the United States, New York, California, and the twelve California counties (or combinations of counties) included in the 100 metropolitan areas with 500,000 or more population. Five of these twelve areas have reported more AIDS cases than Orange County: Los Angeles, San Francisco, San Diego, and Alameda counties, and the Riverside County-San Bernardino County EMA.

**Table 2-2. Cumulative AIDS Cases for Selected Jurisdictions 1981-June 1999**

United States	711,344
New York	132,086
California	113,025
Los Angeles County	39,863
San Francisco County	26,715
San Diego County	9,928
Alameda County	7,633
Riverside-San Bernardino	6,455
<b>Orange County</b>	<b>5,251</b>
Sacramento County	3,033
Santa Clara County	2,963
Fresno County	1,097
Kern County	926
Ventura County	756
San Joaquin County	699

## Local AIDS Surveillance Data

Five thousand four hundred and forty-two (5,442) Orange County residents with AIDS have been reported to the CDC since the time of Orange County's first case report in 1981 through December 31, 1999. As noted in Chapter 1, the first cases of AIDS identified in Orange County were two men who were contacts to *Patient Zero*.

The Orange County Health Care Agency's AIDS Surveillance Program maintains a registry of reported AIDS cases and known HIV-positive persons from whom consent for reporting has been obtained. This registry is the primary source for descriptive information on AIDS cases

and estimates of the known HIV-infected persons in Orange County. This information is summarized in the *HIV Monitoring Report*<sup>2</sup>. Reporting, however, is limited by the health seeking and medical-care patterns of persons with HIV and AIDS and the State reporting requirements related to HIV/AIDS. In California, AIDS is a reportable disease. It is unlikely, however, that all cases are reported. The CDC has estimated that registries such as Orange County's record 80%-90% of cases. Additionally, HIV infection is not reportable in California. HIV testing data included in the *HIV Monitoring Report* is from the HIV testing database maintained by the County for reporting test results to the State Office of AIDS. This database includes general demographic characteristics of persons tested at County-operated HIV test sites.

Table 2-3 presents Orange County AIDS cases by race/ethnicity, gender, age at diagnosis and exposure category. Cumulative cases reported to the CDC through December 31, 1999 are included as well as cases reported during the 24-month period of January 1, 1998 through December 31, 1999.

The 5,442 Orange County residents with AIDS reported to the CDC through December 31, 1999 include 5,407 adults/adolescents (99%) and 35 children under the age of 13 (1%). Ninety-two percent of these cumulative cases were male (4,992), 8% were female (450). The majority of cumulative cases were among men who have sex with men (71%), injection-drug users (11%) and men who have sex with men and use injection drugs (5%). Another 5% of cases were attributed to heterosexual contact. Sixty-nine percent of cumulative reported cases were White, 24% Latino, 5% African-American and 2% A/PI.

Analysis of the demographic distribution of cumulative cases and those cases reported over the most recent 24-month period indicates a trend of increasing case reports among non-Whites (30% of cumulative cases vs. 49% of cases in the 24-month period) and among females (8% vs. 12%, respectively). Men who have sex with men represent a smaller proportion of recent cases than of the total number of cases reported since the beginning of the epidemic (71% of cumulative cases vs. 57% of cases reported in the most recent 24-month period). These data also indicate increasing proportions of cases attributed to injection-drug use (11% of cumulative cases vs. 14% of 1/98-12/99 cases) as well as to heterosexual contact (5% vs. 8%, respectively). Pediatric cases continue to represent less than 1% of the county's AIDS cases.

The demographic distribution of cases reported in the 24-month period of January 1998 through December 1999 is similar to that of cases reported in 1999. Further discussion of Orange County trends in AIDS case reporting follows.

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<sup>2</sup>Human Immunodeficiency Virus Monitoring Report, County of Orange, Health Care Agency, December 1999.

**Table 2-3. AIDS Case Demographics**

<b>AIDS CASES REPORTED TO CDC THROUGH 12/31/99</b>				
	<u>Cumulative</u>		<u>1/1/98 – 12/31/99</u>	
	<u>Cases</u>			
Total	5442	100%	615	100%
Gender				
Male	4992	92%	542	88%
Female	450	8%	73	12%
Age at Diagnosis				
<20	52	1%	10	2%
20-44	4329	80%	481	78%
45+	1061	19%	124	20%
Race / Ethnicity				
White	3731	69%	307	50%
African-American	258	5%	43	7%
Latino	1297	24%	247	40%
A/PI	96	2%	12	2%
Other/unknown	60	1%	6	1%
Exposure Category				
MSM	3865	71%	350	57%
IDU	603	11%	89	14%
MSM + IDU	282	5%	30	5%
Hemophilia	36	1%	1	<1%
Heterosexual	269	5%	49	8%
Blood Products	80	1%	4	1%
Unknown Risk	271	5%	85	14%
Pediatric	36	1%	7	1%

## AIDS Case Reporting: Demographic Trends

**AIDS Cases by Year of Report:** As of December 1999, a total of 5,442 Orange County resident AIDS cases had been reported to the CDC. The first Orange County AIDS case was reported in 1981 and, as shown in Figure 2-4, cases continued to rise sharply each year until 1993 except for the slight decrease between 1991 and 1992.

Seven-hundred and forty-nine (749) AIDS cases were reported in Orange County in 1993 following the expansion of the AIDS surveillance case definition implemented in January of that year.<sup>3</sup> Fifty to sixty percent of the cases reported each year since 1993 would have classified as AIDS at the time of initial case report based on the pre-1993 AIDS case definition.

<sup>3</sup>Morbidity and Mortality Weekly Report, 1993, Volume 42, 16:308-310.

Orange County reported 309 AIDS cases in 1999, a number roughly equivalent to the 306 cases reported in 1998 and an 11% increase over the 279 cases reported in 1997. The increases observed in the last two years are thought to be partially related to improved surveillance efforts using computer-generated lists of patients with AIDS diagnoses. Twelve case reports resulted from these new sources in 1999. These cases represent a backlog in reporting with a mean time from diagnosis to report of 43.8 months compared to 11.2 months for all cases reported in 1999. This increase followed 36% and 21% decreases in case reporting between 1996 and 1997 and between 1995 and 1996. These declines most likely reflect both the waning effect of the expanded 1993 AIDS surveillance case definition and a slower progression from HIV infection to AIDS attributable to recent treatment advances such as the use of combination antiretroviral therapies, including protease inhibitors. The recent leveling off in cases may be an indicator of failure of these treatment regimens.

Figure 2-5 presents 1993 through 1999 AIDS cases by month of report. As expected the trend indicates heaviest reporting in the early months of 1993 with a decline over time. AIDS case reporting for 1995 was up 22% over cases reported in 1992 prior to the expansion of the AIDS surveillance case definition (550 cases vs. 451 cases). Thirty-one percent fewer cases were reported in 1999 than in 1992 (309 vs. 451).

**AIDS Cases by Ethnicity:** Figures 2-6 and 2-7 illustrate the distribution of Orange County AIDS cases by ethnicity and year of report for each year since 1990. As the figures portray, the distribution of cases among ethnic groups has changed.

The proportion of Whites has declined from 80% of cases reported in 1990 to 47% of cases reported in 1999. Latino cases have increased from 14% of total cases in 1990 to 42% of 1999 AIDS cases. In 1999, the percent of Latinos among Orange County AIDS cases was greater than the proportion in the total population who were Latino (29%). For African-Americans, who comprise less than 2% of the county population, AIDS case reports increased from 3% of 1990 cases to 8% of cases reported in 1999. The percentage of AIDS cases among A/PIs has remained relatively low at less than 4% of total AIDS cases reported. In comparison, 13% of Orange County residents are A/PI.

Trends in AIDS case rates per 100,000 population indicate the greatest increase to be among non-White males and among females in general. Figure 2-8 presents a comparison of 1990 and 1999 adult/adolescent case rates for White, African-American and Latino males and for females. The AIDS case rate for White males decreased from 42.8 per 100,000 in 1990 to 20.4 in 1999. Case rates for African-American males increased from 73.6 to 113.4 and Latino male case rates increased from 20.5 to 39.1. The female case rate, while remaining low at 3.7 per 100,000 in 1999, more than doubled during this period.

It is important to note that race alone does not increase risk for HIV infection as the disease is associated with well-recognized behaviors. The overwhelming majority of Orange County

cases have been associated with sex between men and/or injection-drug use; thus we must continue to target prevention activities towards those who engage in these high-risk behaviors. These local data demonstrating increasing case rates for specific groups indicate that special emphasis needs to be placed on African-Americans and Latinos who engage in behaviors that place them at increased risk for HIV disease.

**AIDS Cases by Exposure Category:** Figures 2-9 and 2-10 show the distribution of reported AIDS cases by exposure category and year of report. Locally, as expected, most reported cases are among men who have sex with men. However, this proportion has declined from 85% of 1990 cases to 60% of cases reported in 1999. Cases reporting injection-drug use and male-with-male sex are included in the category "men who have sex with men" in the graphs; the percentage of such cases was 6% of both 1990 and 1999 cases.

Injection-drug use alone accounted for only 5% of AIDS cases reported in 1990 compared to 16% of 1999 case reports. Heterosexual transmission ranks third among reported risk factors for AIDS in Orange County, increasing from 1% of 1990 cases (N=2) to 7% of 1999 cases (N=21). Of the 21 cases with heterosexual transmission identified in 1999, 67% (14) could not identify the risk factor of their HIV-positive partner, 19% (4) identified an IDU HIV-positive partner, and another 10% a bisexual HIV-positive partner (2).

**AIDS Cases by Gender:** While the majority of Orange County AIDS cases continue to be male (87% of 1999 case reports), female cases have increased from 5% of cases reported prior to 1990 to 13% of 1999 cases. Females represented 23% of 1999 U.S. AIDS cases.

Figure 2-11 presents Orange County female adult/adolescent AIDS cases by exposure category. Case reports increased from a low of 14 cases in 1990 to a high of 63 cases in 1995. Case reporting declined 40% between 1995 and 1999. However, with 38 female AIDS cases reported in 1999, case reporting remains above the level reported in the years prior to 1993. The distribution of Orange County AIDS cases by gender demonstrates variation by ethnicity. Higher proportions of African-American (14.4%), Latino (11.2%) and A/PI (10.4%) AIDS cases are female as can be seen in Figure 2-12.

Among White males, 74% of 1999 reported cases were men who had sex with men; this exposure category accounted for 71% of African-American male cases, 72% of Latino male cases and 60% of A/PI male cases. Five (5%) percent of White males, 7% of African-American males, and 5% of Latino males reported injection-drug use in combination with sex with men. Injection-drug use alone was the reported exposure category for 32% of African-American males, 10% of Latino males, and 11% of White males. Three (3%) percent of Latino males reported high-risk heterosexual contact as did 1% of White males. Only two (2) A/PI male cases were reported in 1999. See Figure 2-13.

Among females, heterosexual transmission and injection-drug use accounted for the majority of 1999 reported cases. Heterosexual transmission was reported for 50% of 1999 Latina cases and 40% of 1999 White female cases; injection-drug use for 60% of White female cases and 19% of Latina cases. These differences by ethnicity are most likely explained by the small number of female cases reported. Six female African-American cases were reported in 1999, 4

were related to IDU and 2 to heterosexual transmission. No female A/PI cases were reported in 1999. See Figure 2-14.

Thirty-three (33) African-American female cases have been reported to date, two with unknown risk. Of those with known risk, 15 (48%) were attributable to injection-drug use. Forty-one (41%) percent of cumulative White female cases and 31% of Latina cases with known risk were IDU-related. Only 8 A/PI female cases have been reported to date, none among injection-drug users.

Of cumulative female cases attributable to heterosexual transmission, about one-third of White (29%) and Latina cases (29%), twenty percent of A/PI cases and 17% of African-American cases were traced to an HIV-positive injection-drug-using male partner. Twenty-five percent (25%) of White, 20% of A/PI, 12% of Latina and 8% of African-American female cases were traced to an HIV-positive bisexual male partner. More than one-half of African-American (67%), Latina (58%) and A/PI (60%) females and 41% of White females reporting heterosexual transmission, did not know the risk factor of their HIV-positive sexual partner. These are all women who did not know that they were at risk for transmission of HIV.

**AIDS Cases by Age Group:** Persons in their thirties consistently compose the single largest group of reported AIDS cases in Orange County. Forty-five (45%) percent of cumulative cases reported through December 1999 were among persons in this ten-year age cohort. The next two largest age categories represented are persons in their forties and in their twenties (23% and 20% of cumulative cases, respectively). The median age of persons reported with AIDS (36 years) and persons testing HIV positive at County test sites (30 years) has remained stable. The age distributions for males and females with AIDS are comparable. The same is true for men and women testing HIV positive at County test sites.

Consistent with the low incidence of AIDS cases among Orange County females, pediatric AIDS cases are also low. A total of 35 pediatric cases (under the age of 13) have been reported in Orange County, less than 1% of total AIDS cases reported. Most (77%) are attributed to mothers with HIV infection. Seventeen cases of AIDS have been reported among Orange County adolescents (13-19 years of age). Six (35%) were attributed to receipt of blood products (includes 3 hemophiliacs), 6 (35%) to gay/bisexual contact and 2 (12%) to heterosexual transmission.

**AIDS Cases by City of Residence:** AIDS cases are and have been widely distributed throughout the county; in fact, only one of the thirty-one cities in Orange County has reported fewer than 10 cases of AIDS since the beginning of the epidemic in 1981. Table 2-4 presents cumulative cases reported through December 31, 1999, as well as cumulative incidence rates per 100,000 population by city of residence.

None of the cities that ranked in the top five in number of reported cases ranked lower than 10<sup>th</sup> in terms of cumulative incidence rate. Two of the cities that ranked in the top five in cumulative incidence rate ranked lower than 10<sup>th</sup> in number of cases reported (Laguna Hills and Dana Point).

**Table 2-4. Cumulative AIDS Cases Through December 31, 1999  
and Rate/100,000 Population by City**

Reported Cases		Cumulative Incidence		Rate/ 100,000
Santa Ana	847	Laguna Beach		2260.5
Anaheim	612	Laguna Hills		354.5
Laguna Beach	564	Dana Point		313.3
Garden Grove	333	Costa Mesa		304.9
Costa Mesa	322	Laguna Niguel		295.6
Huntington Beach	320	Newport Beach		287.8
Orange	245	Santa Ana		268.9
Newport Beach	213	Stanton		239.3
Fullerton	189	Garden Grove		212.8
Laguna Niguel	175	Anaheim		199.8
Westminster	139	Orange		192.0
Irvine	135	San Clemente		182.7
Dana Point	117	San Juan Capistrano		168.2
Buena Park	110	Tustin		163.2
Tustin	109	Huntington Beach		162.7
Laguna Hills	109	Westminster		161.3
San Clemente	90	Los Alamitos		149.4
Mission Viejo	89	Fullerton		149.1
Stanton	81	Cypress		146.4
Lake Forest	73	Buena Park		144.9
Cypress	71	Seal Beach		139.7
Fountain Valley	69	La Palma		134.1
La Habra	64	Lake Forest		122.9
Placentia	55	Fountain Valley		122.3
San Juan Capistrano	54	La Habra		114.7
Yorba Linda	40	Placentia		111.9
Seal Beach	38	Irvine		98.8
Brea	33	Mission Viejo		92.4
La Palma	22	Brea		90.7
Los Alamitos	18	Villa Park		90.6
Villa Park	6	Yorba Linda		64.7

Figures 2-15 through 2-18, inclusive, display Orange County reported AIDS cases for the first 5, 10, 15 and 19 years of the epidemic (i.e. each figure following Figure 2-15 adds four or five additional years of case reports).

These maps provide a visual representation of the geographic distribution and concentration of persons diagnosed and reported as AIDS cases. The maps demonstrate the dramatic increases in reported AIDS cases over time and place. AIDS cases have been reported in each of the thirty-one cities in Orange County. Figure 2-18 presents cumulative case reports by city through 1999. These data demonstrate that, with the exception of Laguna Beach in the southeast section of the county, the cities with the highest concentrations of AIDS cases (200 or more cases reported) are all in the central or south-central section of the county.

Orange County's overall 1999 AIDS case rate was 11.1 per 100,000 population. The U.S. and California case rates for the same period were 16.7 and 16.4, respectively<sup>4</sup>. Figure 2-19 presents 1999 AIDS case rates per 100,000 population by city of residence (incorporated cities only). The 1999 case rate for Laguna Beach, the city with the highest case rate in the county, was 64.1 (16 cases reported). Santa Ana, the largest city in the County, reported the highest number of cases in 1999 (68 cases reported) and the third highest rate (21.6). Four additional cities had 1999 case rates between 15 and 50; Anaheim (15.7, 48 cases), Dana Point (18.7, 7 cases), Garden Grove (15.3, 24 cases) and Laguna Hills (22.8, 7 cases).

Only two of thirty-one Orange County cities reported more AIDS cases in the five-year period of 1995-1999 than in the preceding five-year period (1990-1994). Case reports were up 68% in Lake Forest (22 in 1990-94 vs. 37 cases in 1995-99); and up 23% in Laguna Hills (39 vs. 48). Total AIDS case reporting for these two time periods declined 28% (2,541 vs. 1,877).

## **Deaths Among Persons Reported with AIDS**

The number of deaths among persons reported with AIDS in Orange County increased steadily through 1992 but has since demonstrated a pattern of decline. Figure 2-20 presents AIDS deaths by year of occurrence. As can be seen in the graph, death statistics are greatly affected by reporting delays. The proportion of annual deaths reported in years following the year of death is represented by the red portion of each bar.

January through June data for the two most recent years were used for analyzing recent changes in AIDS deaths (Table 2-5). Overall, there was little difference in the number of AIDS deaths reported in each of these periods (1998=39, 1999=40). However, differences by subgroup were apparent. Male AIDS deaths increased by 19% while female AIDS deaths decreased by 71%. The number of deaths declined among Whites (down 33%) and African-Americans (down 50%) yet increased among Latinos (up 89%). A/PI deaths increased from 1 to 2 in these two periods. By risk-exposure category, deaths declined 50% among persons infected through heterosexual contact and 17% among injection-drug users while increasing 12% among men who have sex with men. The decrease in AIDS deaths reflects both the leveling of case reports and improved survival among persons with AIDS. This increased survival reflects recent improvements in medical care.

## **AIDS Prevalence**

As of December 1999, an estimated 2,441 Orange County residents were living with AIDS (this estimate includes only those persons reported as AIDS cases). The number of persons living with AIDS at the end of 1999 was 5% higher than at the end of 1998, and 67% higher than 1993. Of prevalent cases of AIDS in 1999, 89% were among men; 61% were White; 6% African-American; and 30% Latino. Figure 2-21 presents AIDS cases by year of diagnosis (bars) and the total number of Orange County residents living with AIDS (prevalent cases) at the close of each year (line).

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<sup>4</sup>HIV/AIDS Surveillance Report, Year-End Edition, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Vol. 11, No. 2, 1999.

Table 2-6 presents a comparison of 1998 and 1999 Orange County prevalent AIDS cases by gender, ethnicity and exposure category. The percentage change (increase or decrease) in the number of persons living with AIDS in 1999 compared to 1998 is also reported.

**Table 2-5. 1998 & 1999 AIDS Deaths (January-June)**

AIDS DEATHS BY YEAR OF OCCURRENCE			
	January-June Only		
	1998	1999	% Change
Total	39	40	+ 3%
Male	32	38	+19%
Female	7	2	- 71%
White	27	18	-33%
African-American	2	1	-50%
Latino	9	17	+89%
A/PI	1	2	+100%
MSM	25	28	+12%
IDU	6	5	-17%
Heterosexual	4	2	-50%
Blood Products	0	0	---
Pediatric	0	2	---

AIDS prevalence increased 9% among females and 5% among males. The data also support the trend towards an increasing proportion of people of color living with AIDS. AIDS prevalence increased 10% among Latinos and 8% among African-Americans between 1998 and 1999 compared to just 3% among Whites.

These changes demonstrate the need for local HIV-related health and support services that are both culturally competent and linguistically appropriate as well as sensitive to the unique needs of women with HIV disease.

Changes in the risk profile of persons living with AIDS are also apparent. As expected, by risk-exposure category, men who have sex with men accounted for the largest number of prevalent cases of AIDS (67%) followed by injection-drug users (13%) and persons infected through heterosexual contact (7%). All other risk-exposure groups combined accounted for less than 7% of prevalent cases of AIDS.

The largest proportionate increases in AIDS prevalence occurred among Latinos (up 10% between 1998 and 1999), females (up 9%), persons infected through heterosexual contact (up 7%) and injection-drug users (up 7%).

**Table 2-6. 1998 & 1999 AIDS Prevalence**

AIDS PREVALENCE BY YEAR			
	1998	1999	% Change
Total	2322	2441	+5%
Male	2080	2177	+5%
Female	242	264	+9%
White	1442	1485	+3%
African-American	127	137	+8%
Latino	671	737	+10%
A/PI	52	52	--
MSM	1590	1640	+3%
IDU	299	321	+7%
MSM + IDU	97	103	+6%
Heterosexual	169	181	+7%
Blood Products	26	26	--
Pediatric	21	21	--

Cases among men who have sex with men increased by 3%. The largest absolute increases in prevalent cases occurred among males (+ 97 cases), Latinos (+ 66 cases) and men who have sex with men (+ 50 cases). The proportion of cases associated with the receipt of blood or blood products has declined in Orange County as it has elsewhere. Routine screening of the blood supply, instituted in the spring of 1985, has significantly reduced the likelihood of infections associated with the blood supply.

Figure 2-22 presents persons living with AIDS by city of residence. Santa Ana, the most populous city in the county, also has the greatest number of persons living with AIDS (440). Anaheim, the second largest city in the county, has 289 living cases. Laguna Beach, the Orange County city with the highest AIDS case rate, remains heavily impacted, with 232 living cases. More than one-half of the persons living with AIDS in Santa Ana (58%), and nearly one-half of those living in Anaheim (46%) are Latino.

## **HIV Seroprevalence**

Table 2-7 presents estimated HIV seroprevalence (persons living with HIV/AIDS) by gender, race/ethnicity and exposure category. The following methodology was used in developing these estimates:

- Develop prevalence estimate range,
- Base estimates on midpoint of estimate range,
  - Establish lower limit from number of living AIDS cases in Orange County,

- Derive upper limit using methodology published by S. Holmberg<sup>5</sup> as proportion of estimates provided for Los Angeles County (Orange County population is 28.6% of Los Angeles County),
- Apply ratios of *Diagnosed AIDS* to *Not Diagnosed* proposed by DHHS<sup>6</sup>.

Based on this methodology, an estimated 6,700 Orange County residents are currently living with HIV/AIDS. Less than one-half of one percent (0.31%) of the adult/adolescent population is estimated to be infected. Thirty children under 13 years of age are estimated to be infected (0.01% of all children less than 13). More than one-half (55%) of the total number estimated to be infected with HIV in the county are not yet diagnosed with AIDS (3,700 of 6,700).

**Table 2-7. July 1999  
HIV Prevalence Estimates**

ESTIMATED HIV POSITIVE PERSONS				
	AIDS Diagnosis		HIV+	
	w/OI	CD4<200	Only	TOTAL
Total	1700	1300	3700	6700
Male	1525	1150	3325	6000
Female	175	150	375	700
White	1010	780	2140	3930
African-American	90	60	200	350
Latino	540	410	1220	2170
A/PI	50	40	110	200
Other	10	10	30	50
Adult/Adolescent Cases				
Men - Sex w/Men	1240	950	2730	4920
Injection Drug Use	220	175	515	910
MSM + IDU	60	30	60	150
Hemophilia	4	4	2	10
Heterosexual Contact	150	126	354	630
Blood/Blood Products	16	10	24	50
Pediatric Cases		16	14	30

Table 2-8 compares these *estimated persons living with HIV/AIDS* (column 4) to persons reported with AIDS in Orange County (column 1 -- cumulative cases through December 31, 1999, column 2 -- cases reported January 1, 1998 through December 31, 1999 and column 3 -- persons living with

<sup>5</sup>S. Holmberg, American Journal of Public Health, May 1996, Vol.86, No.5, pp.642-654.

<sup>6</sup>DHHS, Division of HIV Services, seroprevalence estimates, July 1996.

**Table 2-8. Demographic Distribution –  
AIDS Cases vs. Estimated Persons Living with HIV/AIDS**

DISTRIBUTION OF CASES vs. SEROPREVALENCE				
	Cumulative	AIDS Cases	Living	Estimated
	AIDS Cases	1/1/98 -	AIDS Cases	Living with
	As of 12/99	12/31/99	As of 12/99	HIV/AIDS
<u>Gender</u>				
Male	92%	88%	89%	90%
Female	8%	12%	11%	10%
<u>Race / Ethnicity</u>				
White	69%	50%	61%	59%
African-American	5%	7%	6%	5%
Latino	24%	40%	30%	32%
A/PI	2%	2%	2%	3%
Other	1%	1%	1%	1%
<u>Exposure Category</u>				
Adult / Adolescent				
MSM	75%	67%	72%	74%
IDU	12%	17%	14%	14%
MSM + IDU	6%	6%	5%	2%
Hemophilia	1%	<1%	<1%	<1%
Heterosexual	5%	9%	7%	9%
Blood Products	2%	1%	1%	1%
Pediatric				
Perinatal	75%	100%	95%	87%
Hemophilia	8%	0%	0%	7%
Blood Products	17%	0%	5%	7%

AIDS as of December 31, 1999). The distribution of persons living with HIV in Orange County was revised in 1998 in order to more accurately reflect the more recent trends in case distribution. Males, specifically men who have sex with men, were over-represented in the previous estimate, while injection-drug users and persons who contracted HIV through heterosexual contact were under-represented. The revised distribution provides a better estimate of “where we are going” rather than of “where we have been.”

## Comparison of U.S. and Orange County Cases

Figure 2-23 presents a comparison of U.S. and Orange County AIDS case demographics. Orange County and U.S. cases reported in calendar year 1999 are compared. A number of differences between local and national AIDS cases are demonstrated.

Twenty-four (24%) percent of U.S. cases were female compared to 13% of Orange County cases. There is no difference between Orange County and U.S. cases in terms of age at time of AIDS diagnosis. Most cases were between the ages of 20 and 44 (78% of Orange County cases and 77% of U.S. cases). Twenty percent (20%) of Orange County cases and 22% of U.S. cases were 45 or older. About 1% of both Orange County and U.S. cases were among children less than 13 years of age; another 1% were adolescents (between the ages of 13 and 19).

The largest proportion of Orange County cases reported in 1999 were White (48%) while the largest proportion of U.S. cases were African-American (47%). In comparison, only 8% of Orange County cases were African-American. Slightly fewer than one-third (32%) of U.S. cases were White. Forty-three percent (43%) of Orange County cases were Latino compared to 20% of U.S. cases. Only one percent (1%) of both Orange County and U.S. cases were A/PI.

Differences by exposure category are also apparent. The largest category for both Orange County and U.S. cases with known exposure was men who have sex with men, almost two-thirds of Orange County cases (65%) reported this exposure compared to less than one-half (44%) of U.S. cases. Five percent (5%) of U.S. cases and 7% of Orange County cases were men who have sex with men and also report injection-drug use. Nineteen percent of Orange County cases were attributed to injection-drug use alone (IDU) compared to 29% of U.S. cases. Eight percent of Orange County cases were attributed to heterosexual contact compared to 20% of U.S. cases.

Figure 2-24 presents U.S. and Orange County 1999 AIDS case rates per 100,000 population by ethnic group. As the data demonstrate, persons of color have been disproportionately affected by the AIDS epidemic. The highest case rates are among U.S. and Orange County African-Americans (66.0 and 57.4, respectively). The Orange County, 1999 Latino AIDS case rate (16.1) is higher, for the third year in a row, than the White case rate (9.5). Both U.S. and Orange County A/PI case rates remain low.

As reported earlier, Orange County trends in AIDS case rates indicate the greatest increase among non-White males and among females in general. While the Orange County case rate for adult/adolescent White males declined between 1990 and 1999 (from 42.8 to 20.4 per 100,000 adult/adolescent White males), the rate increased among Latino males (from 20.5 to 39.1 per 100,000 adult/adolescent Latino males). The Orange County AIDS case rate also increased among African-American males (from 73.6 to 113.4 per 100,000 adult/adolescent African-American males).

As discussed previously, Latinos constitute the largest minority group in Orange County -- slightly more than one in four persons in the county is Latino (estimated at 29% of the 1999 population). Thirty-one percent of the year 2000 population is projected to be Latino. Latino AIDS cases have increased from 14% of total cases in 1990 to 42% of 1999 cases. Latinos in Orange County, along with African-Americans, are now disproportionately affected by the AIDS epidemic. Many of these Latino AIDS patients are recent immigrants, with limited or no

English proficiency. Treatment interventions and prevention messages have been designed to meet the specific language and cultural needs of this population.

## **Survival Analysis**

Table 2-9 shows the mean and median survival in months by selected intervals of diagnosis, gender, race/ethnicity, age group, probable source of infection, and selected AIDS-defining conditions among Orange County AIDS cases who have died. People whose death occurred in the same month that they were diagnosed (zero survival) and those whose only AIDS-defining condition was a low CD4 count ( $<200$  cells/mm<sup>3</sup>) were excluded from this analysis.

Differences in average survival exist among those who have died according to the interval of diagnosis. People who were diagnosed with AIDS in 1997 or thereafter and have died, lived for a shorter time on average than those diagnosed prior to 1997. Those diagnosed prior to 1994 lived longer on average than those diagnosed between 1994 and 1996.

There was little difference between males and females in terms of average survival. Whites lived longer on average than Latinos and African-Americans who have been diagnosed with AIDS and who have died. This might be explained by delays in seeking care. Survival for A/PIs was equivalent to survival for Whites. These data, however, must be interpreted with caution due to the small number of A/PI cases and the larger standard error.

Persons aged 20-39 who have died have lived longer on average than those 40 years of age and older. Differences in survival observed among those less than 20 years of age and those between 60 and 64 must be interpreted with caution due to the small numbers of cases and large standard errors.

There was little difference in average survival by probable source of infection. Men who have sex with men in addition to IDU, men who have sex with men, injection drug users, and those whose infection was attributed to heterosexual contact have lived longer on average than transfusion recipients. Recipients of factor concentrates who have died have lived longer on average than all others who have died. This observation has been reported elsewhere in the United States and most likely is a reflection of the fact that most patients with hemophilia would already be under the care of a physician, leading to earlier diagnosis and treatment.

There were differences in average survival by the initial AIDS-defining condition. Persons who died and had *Pneumocystis carinii* pneumonia or Kaposi's sarcoma as the initial AIDS-defining condition lived longer on average than those who died and had neurologic involvement as the initial AIDS-defining condition.

## **Years of Potential Life Lost/ Economic Impact**

Table 2-10 indicates that as of December 31, 1999, the HIV epidemic has resulted in 80,182 years of potential life lost for Orange County residents.

It has been estimated by the U.S. Public Health Service that the lifetime cost for providing medical care to one person with HIV disease is \$119,000. If this estimate is correct, the 3,001 Orange County residents who have already died from AIDS have cost the health care system at least \$357,119,000. If this estimate were expanded to include the 6,700 persons estimated to be living with AIDS/HIV in Orange County, then an additional \$797,300,000 would be required to provide the necessary medical care.

**Table 2-9. Survival Time in Months Among AIDS Cases Who Have Died**

	N	Mean Survival (months)	Standard Error	Median Survival (months)
Year of Diagnosis				
1987 or earlier	411	19.1	1.1	12.0
1988-1990	783	19.6	0.6	15.0
1991-1993	837	20.5	0.6	16.0
1994-1996	237	15.2	0.9	11.0
1997-1999	45	4.9	0.9	3.0
Gender				
Male	2170	19.0	0.4	14.0
Female	143	19.6	1.5	15.0
Ethnicity				
White	1786	19.5	0.4	15.0
African-American	85	14.5	1.7	10.0
Latino	391	18.3	0.9	13.0
A/PI	27	19.6	4.0	15.0
Age				
Less than 5	3	50.3	17.7	54.0
5-12	6	35.5	13.6	19.5
13-19	5	13.8	5.1	11.0
20-29	454	18.9	0.9	14.0
30-39	1048	20.4	0.6	15.5
40-49	513	18.2	0.8	13.0
50-59	211	15.1	1.0	10.0
60-64	36	21.3	3.8	15.5
65 and older	37	11.3	1.8	9.0
Risk Factor				
Sex between men (MSM)	1761	19.1	0.4	15.0
Injection-Drug Use (IDU)	187	19.8	1.6	13.0
Sex between men/IDU (MSM + IDU)	142	19.8	1.7	13.0
Hemophilia/Receipt of factor concentrate	24	26.3	4.2	20.5
Heterosexual contact	71	19.7	1.8	17.0
Transfusion recipient	46	15.9	2.2	12.0
<i>Pneumocystis carinii</i> pneumonia	965	19.2	0.6	16.0
Kaposi's sarcoma	382	19.8	1.0	14.0
Neurological involvement	247	14.7	1.3	8.0

**Table 2-10. Years of Potential Life Lost (YPLL) by Age Group**

Age Group	AIDS Deaths	Average Years to 65	YPLL
Under 13	15	59	885
13-19	8	49	392
20-29	556	40	22,240
30-39	1330	30	39,900
40-49	688	20	13,760
50-59	286	10	2,860
60-64	58	2.5	145
65 and over	60	0	

## **Completeness of Reporting**

It is believed that the reporting of AIDS cases in Orange County is excellent. HCA's HIV Surveillance Unit accesses a number of resources for reports of AIDS. These include:

- Public and Private Hospitals
- Private Physicians
- Community Clinics
- Community-Based Organizations
- Other Health Departments
- Death Certificates
- AIDS Drug Assistance Program (ADAP)
- Tumor and Tuberculosis Registries
- Blood Bank Screening Programs
- California Department of Corrections
- California Department of Health Services
- Office of AIDS
- Centers for Disease Control and Prevention
- United States Department of Defense

Timeliness of reporting has been an important issue since this epidemic was first recognized. Table 2-11 presents AIDS cases by year of diagnosis and year of report in Orange County. Prior to 1993, the annual number of cases diagnosed exceeded the number of cases reported. The expansion of the AIDS surveillance case definition in 1993, which allowed for allocation of diagnoses to prior years, marked the first year where reported cases exceeded diagnoses of AIDS. Since then, (except for 1997) the number of reported cases has exceeded the number diagnosed. This is explained by an actual decline in persons diagnosed with AIDS and the identification of previously unreported cases.

## **Ryan White Service Providers**

Ryan White-funded service providers in Orange County are required to participate in a standardized data collection system. Eight organizations provide service delivery information.

More than 2,000 clients have been served in each of the last four years (2,495 in 1999, 2,407 in 1998, 2,231 in 1997, and 2,129 in 1996).

Table 2-12 presents the demographic distribution of 1999 clients. Almost one-quarter (22%) of 1999 clients were new to the system. It is important to note that these clients do not necessarily have an AIDS-defining condition; many are asymptomatic. In fact, clients do not have to be HIV positive to receive some services; they may be family members or friends of those with HIV disease.

**Table 2-11. AIDS Cases by Year of Diagnosis and Year of Report**

Year	Number Diagnosed	Number Reported
Before 1987	313	257
1987	232	207
1988	310	269
1989	381	291
1990	372	358
1991	547	459
1992	570	451
1993	639	749
1994	504	524
1995	472	550
1996	386	433
1997	294	279
1998	233	306
1999	189	309

Of those clients seen in 1999, 89% were HIV infected. Of those with HIV infection, 53% were diagnosed with AIDS.

A higher proportion of clients (17%) than of 1999 AIDS cases (13%) was female. The distribution of 1999 clients by ethnicity closely matched that of AIDS cases reported in 1999. Persons in their thirties comprise the largest group of both clients (41%) and AIDS cases (43%) in Orange County. The next two largest age categories represented are persons in their forties and in their twenties (31% and 12% of clients, respectively).

The majority (90%) of clients reported income below 300% of the federal poverty level. Few reported having insurance coverage for medical care; 18% had private

**Table 2-12. 1999 Ryan White Service Providers – Client Data**

	N	%
Unduplicated Clients	2,495	100%
New Clients	549	22%
Male	2,074	83%
Female	417	17%
White	1,249	50%
African-American	168	7%
Latino	930	37%
A/PI	69	3%
Other/Unknown	79	3%
Less than 13	45	2%
13-19	18	1%
20-29	311	12%
30-39	1,018	41%
40-49	762	31%
50 and older	341	14%

insurance coverage, 19% Medicaid and 8% other public insurance. More than one-third (35%) reported that they relied on the Health Care Agency's HIV Clinic for their primary health care. Nineteen (19%) percent were under the care of a private physician. Nine percent (9%) went to an outpatient clinic in a hospital for primary medical care; 7% to the VA or a military hospital. Eight (8%) percent were covered by a health maintenance organization (HMO). Fourteen percent (14%) stated that they did not have a primary health care source.

Nine (9%) percent of clients were determined by their service provider to have an active substance abuse problem; 8% to have active psychiatric illness. Three (3%) percent of clients were homeless (N=66).

Forty-two percent of clients served received primary medical care; 63% received one-on-one case management services. Eighty-one percent (81%) received other case management services, such as the coordination of services by the client's case manager with other providers. Other services received included client advocacy (55% of clients), mental health treatment (37%), other counseling (not mental health) services (34%), and education/risk reduction (28%). Also, food bank/home-delivered meals (29%), dental care (16%), transportation (19%), and housing assistance (16%). Home health care services and buddy/companion services were each received by 5% of clients.

## **AIDS Drug Assistance Program**

Orange County elected to participate in the California Department of Health Services, AIDS Drug Assistance Program (ADAP) in 1988. Initially, only zidovudine (AZT) was made available to low-income persons with HIV. Since then 142 other drugs have been added to the ADAP formulary.

**Table 2-12. ADAP Clients by Gender and Ethnic Group**

	Male	Female	Total	Row %
White	1,216	129	1,345	56%
African-American	107	22	129	5%
Latino	765	109	874	36%
A/PI	45	3	48	2%
Other/Unknown	23	3	26	1%
Total	2,156	266	2,422	100%
Column %	89%	11%	100%	

Orange County enrolled 2,172 persons into ADAP between 1987 and December 31, 1997. In 1999, more than a thousand clients were enrolled.

Table 2-12 presents ADAP enrollment by gender and ethnicity. Clients enrolled in ADAP are representative of Orange County AIDS cases in terms of gender and race/ethnicity

## **Anonymous HIV Testing Program**

The Alternative Test Site (ATS) program was developed by the California State Office of AIDS for individuals wanting to know their HIV antibody status. ATSs were established throughout California. One site was established in the Health Care Agency's Special Diseases Clinic which opened June 1, 1985. The HIV antibody test administered in an ATS addresses the confidentiality concerns of individuals at risk for HIV infection. All testing is anonymous and includes test-linked education. The service includes an explanation of the test procedure and meaning of the results; recording of demographic variables and risk assessment; provision of information on HIV transmission, prevention, and strategies for behavior change; development of a risk-reduction plan; collection of a laboratory specimen; and distribution of condoms and educational materials. All who test positive are offered on-site support services and medical care or are encouraged to seek care through the private medical community.

Between June 1, 1985 and December 31, 1999, 127,864 specimens were tested anonymously. Of these, 2,978 (2.3%) were found to have serologic evidence of HIV infection. Fewer positive tests were reported in both 1998 (N=74, 1.2%) and 1999 (N=68, 1.4%). Of cumulative clients presenting for anonymous testing at the Orange County Alternative Test Site, 57% were White, 29% were Latino, 4% were African-American, and 4% were A/PI. Ethnicity was unknown for 6% of those testing. See Table 2-13.

Almost one-half (47%) of those testing positive were White, 25% were Latino, and 5% were African-American. However, ethnicity was unknown for 21% of those with positive tests. As can be seen in Table 2-13, the prevalence of HIV infection among specimens submitted by African-Americans (3.1%) was about 1.6 times that for both Whites (1.9%) and Latinos (2.0%). However, prevalence was highest among specimens submitted by clients of unknown ethnicity (8.7%).

Most (81%) of the 2,978 infections identified in this program (positive tests) were associated with sex between men and/or injection-drug use compared to only 23% of total tests. These data support the continued need for effective outreach to encourage testing for all persons who engage in behaviors that place them at increased risk for HIV infection.

Almost one-third (29%) of those testing reported multiple heterosexual partners as their risk for infection, yet only 3% of positive tests were to persons in this risk group. Six percent (6%) of positives were to persons who did not know or admit their risk at time of testing.

Cumulative seroprevalence among those who reported both sex between men and injection-drug use as risk factors was 16.8%. Comparable seroprevalence for 1998 and 1999 was 8.0% and 10.7%. It is important to note that, as the sample size for persons in this risk group is small, seroprevalence is subject to considerable variability.

Among men who have sex with men, cumulative seroprevalence was 10.4%. Many infections among men in this risk group were identified early in the epidemic; annual seroprevalence has been declining for several years. 1998 and 1999 rates were 3.9% and 3.8%, respectively. Almost 6% (5.4%) of cumulative tests to those who identified sex with an HIV-positive partner as their risk factor were positive. Annual 1998 and 1999 seroprevalence for this group was 4.1% and 3.8%. These numbers are also small and subject to variability.

Among injection-drug users, cumulative seroprevalence was 2.7%. Cumulative seroprevalence was highest, at 26.7%, among hemophiliacs who received factor concentrate. However, the sample size is very small (4 positive tests of 15 total tests).

**Table 2-13. Anonymous HIV Test Results by Risk Factor, Ethnicity and Gender**

	Positive Tests	Total Tested	Rate /100
<b>Risk Factor</b>			
Sex between men (MSM)	2,054	19,739	10.4
MSM + injection-drug use	127	758	16.8
Injection-drug use	230	8,442	2.7
Hemophiliac	4	15	26.7
Partner of hi-risk person	111	22,095	0.5
Partner HIV+	110	2,020	5.4
Male w/ prostitute contact	37	4,347	0.9
Female prostitute	0	187	0.0
Heterosexual multi-partner	96	37,379	0.3
Transfusion recipient	28	2,819	1.0
Other Risk	10	1,510	0.7
None known/admitted	171	28,553	0.6
<b>Ethnicity</b>			
White	1,392	73,378	1.9
African- American	154	5,031	3.1
Latino	746	37,123	2.0
A/PI	51	5,074	1.0
Other/Unknown	635	7,258	8.7
<b>Gender</b>			
Male	2,687	78,825	3.4
Female	236	46,441	0.5
Unknown	55	2,598	2.1
<b>TOTAL</b>	<b>2,978</b>	<b>127,864</b>	<b>2.3</b>

Seroprevalence among those who reported heterosexual contact as their sole risk factor has remained at less than 1% (0.3% of cumulative tests and 0.2% and 0.4% of 1998 and 1999 tests, respectively). Likewise, cumulative seroprevalence among females is less than 1% (0.5%). The prevalence of HIV infection among specimens submitted by males was 7.0 times that for females (3.4% vs. 0.5%). In 1999, 14 of the 68 positive specimens were submitted by females (21%).

The history of anonymous HIV testing in Orange County can be depicted by a squiggly line with five sharp spikes. Each spike, demonstrating a marked increase in voluntary anonymous HIV tests, followed the public disclosure of a celebrity's infection with the human immunodeficiency virus (HIV). The first sharp rise in AIDS testing came in October 1985, after actor Rock Hudson disclosed he had AIDS. The next four spikes coincided with the death of pianist Liberace, the illness of California tax revolt leader Paul Gann, the announcement by basketball star Magic Johnson that he was HIV-infected and the disclosure that tennis champion Arthur Ashe had AIDS. Local officials charted the correlation and reported it in a letter to the *New England Journal of Medicine*<sup>7</sup> in November 1992. The letter noted that Johnson's disclosure particularly helped increase demand for HIV testing among two overlapping groups at especially high risk for HIV infection, the young and racial minorities. "The more frequently members of America's royal family choose to alarm and

<sup>7</sup> "Disclosure of AIDS in Celebrities", G. Gellert, P. Weismuller, K. Higgins, R. Maxwell. *New England Journal of Medicine*, 1992; Vol. 327, No. 19, page 1389.

motivate the public about AIDS through personal disclosure,” the letter said, “the more successful will be our national effort to control this disease.”

## **Confidential HIV Testing Programs**

In March of 1985 the Orange County Health Care Agency established confidential HIV antibody counseling and testing programs. Confidential testing is offered at the HCA Special Diseases Clinic in Santa Ana and through special outreach testing efforts. Initially, reported confidential testing figures excluded repeat test results because they consisted primarily of referrals of HIV-positive persons tested anonymously. These referrals no longer constitute a significant proportion of repeated confidential tests. Beginning with January 1993, repeat tests are included in reported confidential testing data.

The service includes an explanation of the test procedure and meaning of the results; recording of demographic variables and risk assessment; provision of information on HIV transmission, prevention, and strategies for behavior change; development of a risk-reduction plan; collection of a laboratory specimen; and distribution of condoms and educational materials. All who test positive are offered on-site support services and medical care or are encouraged to seek care through the private medical community.

Between March 1, 1985 and December 31, 1999, 37,295 specimens were tested confidentially at the Special Diseases Clinic. Of these, 339 (0.9%) were found to have serologic evidence of HIV infection. In comparison, seroprevalence was 0.4% for tests done in 1998 and 0.3% for tests done in 1999. Table 2-14 presents these confidential tests by risk factor, ethnicity, and gender.

More than one-half (53%) of those tested confidentially were Latino, 33% were White, 4% were African-American, and 6% were A/PI. Ethnicity was unknown for 4% of those testing confidentially. The over-representation of people of color among this

**Table 2-14. Confidential HIV Test Results by Risk, Ethnicity and Gender**

	Positive Tests	Total Tested	Rate /100
<b>Risk Factor</b>			
Sex between men (MSM)	143	3,342	4.3
MSM + injection-drug use	14	152	9.2
Injection-drug use	29	1,549	1.9
Hemophiliac	1	4	25.0
Partner of hi-risk person	19	6,493	0.3
Partner HIV+	14	214	6.5
Male w/ prostitute contact	10	1,949	0.5
Female prostitute	0	188	0.0
Heterosexual multi-partner	18	10,863	0.2
Transfusion recipient	2	898	0.2
Occupational exposure	8	1,466	0.5
None known/admitted	81	10,177	0.8
<b>Ethnicity</b>			
White	101	12,358	0.8
African- American	12	1,546	0.8
Latino	142	19,607	0.7
A/PI	16	2,219	0.7
Other/Unknown	68	1,565	4.3
<b>Gender</b>			
Male	278	21,028	1.3
Female	52	15,858	0.3
Unknown	9	409	2.2
<b>TOTAL</b>	<b>339</b>	<b>37,295</b>	<b>0.9</b>

group of testers when compared with those testing anonymously is a reflection of the clients who are currently accessing the Special Diseases Clinic.

As shown in Table 2-14, there is little difference between ethnic groups in terms of prevalence of HIV infection; positivity is close to 1% for all groups. As with the anonymous testing program, prevalence is highest for specimens submitted by clients of unknown ethnicity (4.3%).

More than one-half (55%) of the 339 infections identified in this program were associated with sex between men and/or injection-drug use compared to only 13% of total tests. Once again these data support the need for outreach efforts designed to encourage testing for those persons who engage in specific behaviors that place them at risk for HIV infection. Twenty-nine percent (29%) of those testing reported multiple heterosexual partners as their risk for infection, yet only 5% of positive tests were to persons in this risk group. One-quarter of positive tests (24%) were to persons who did not know or admit their risk at time of testing.

Cumulative seroprevalence among those who reported both sex between men and injection-drug use was 9.2%. Comparable seroprevalence for 1999 was 10.0%. There were no positive tests for members of this risk group in 1998. However, once again, the sample size for persons in this risk group is small and therefore subject to variability.

Among men who have sex with men, cumulative seroprevalence was 4.3%; annual seroprevalence was 3.0% in 1998 and 2.0% in 1999. Almost 7% (6.5%) of cumulative tests to those who identified sex with an HIV-positive partner as their risk factor tested positive. Annual 1998 and 1999 seroprevalence for this group was 7.7% and 4.5%.

Among injection-drug users, cumulative seroprevalence was 1.9%. Positive tests represented 1.3% and 0.43% of 1998 and 1999 tests for this group. Hemophiliacs who received factor concentrate once again have the highest seroprevalence (25%); however, this rate represents only one positive test.

Seroprevalence among those who reported heterosexual contact as their sole risk factor remains very low; 0.2% of both cumulative and 1998 tests and 0.1% of 1999 tests. Seroprevalence among specimens submitted by males (1.3%) was more than 4.0 times that for females (0.3%).

## **Methadone/Drug Clinics HIV Testing Programs**

Confidential HIV antibody counseling and testing was implemented in HCA's methadone and drug treatment clinics in 1987. Testing is provided in a confidential setting, linked with pre-test and post-test counseling. Included are an explanation of the test procedure and meaning of the results; recording of demographic variables and risk assessment; provision of information on HIV transmission, prevention, and strategies for behavior change; development of a risk-reduction plan; collection of a laboratory specimen; and distribution of condoms and educational materials. All who test positive are offered on-site support services and medical care or are encouraged to seek care through the private medical community.

Between August 1, 1987 and December 31, 1999, 36,372 specimens were tested confidentially at HCA's methadone and drug treatment clinics. Of these, 354 (1.0%) were found to have serologic evidence of HIV infection. Seroprevalence for 1997 and 1998 was 1.0% and 0.5%, respectively. Table 2-15 presents methadone and drug treatment tests by risk factor, ethnicity, and gender.

Of cumulative clients presenting for testing at methadone and drug treatment clinics, 58% were White, 28% Latino, 6% African-American and 1% A/PI. Ethnicity was other/unknown for 7% of those testing.

Almost one-half (45%) of those testing positive were White, 31% Latino and 13% African-American. Ethnicity was other/ unknown for 10%. The prevalence of HIV infection among specimens submitted by African-Americans (2.2%) was almost 3.0 times that for Whites (0.8%) and 2.0 times that for Latinos (1.1%).

**Table 2-15. Methadone/Drug Clinic HIV Test Results by Risk, Ethnicity & Gender**

	Positive Tests	Total Tested	Rate /100
<b>Risk Factor</b>			
Sex between men (MSM)	32	806	4.0
MSM + injection-drug use	16	515	3.1
Injection-drug use	197	16,207	1.2
Hemophiliac	0	7	0.0
Partner of hi-risk person	28	7,031	0.4
Partner HIV+	4	277	1.4
Male w/ prostitute contact	9	1,477	0.6
Female prostitute	3	436	0.7
Heterosexual multi-partner	18	3,826	0.5
Transfusion recipient	5	792	0.6
Occupational exposure	1	300	0.3
None known/admitted	41	4,698	0.9
<b>Ethnicity</b>			
White	159	20,960	0.8
African- American	47	2,175	2.2
Latino	109	10,236	1.1
A/PI	3	534	0.6
Other/Unknown	36	2,467	1.8
<b>Gender</b>			
Male	247	21,033	1.2
Female	88	13,959	0.6
Unknown	19	1,380	1.4
<b>TOTAL</b>	<b>354</b>	<b>36,372</b>	<b>1.0</b>

As expected, most of the infections identified in this program were associated with injection-drug use (61%). Another 9% were among men who have sex with men, and 8% reported sex with a high-risk partner. These data, once again, support the provision of educational and outreach efforts encouraging testing for all persons who engage in behaviors which place them at increased risk for HIV infection.

Cumulative seroprevalence was highest among men who have sex with men (4.0%) and men who have sex with men and also report injection-drug use (3.1%). Cumulative seroprevalence among injection-drug users was 1.2%, while annual seroprevalence among injection-drug users was 1.0% in 1998 and 0.6% in 1999.

Cumulative seroprevalence among injection-drug users tested confidentially at methadone and drug clinics (1.2%) was lower than cumulative seroprevalence among injection-drug users tested at the Alternative Test Site (2.7%). However, when compared with the estimated seroprevalence rate for the general population (0.3%), the seroprevalence rates among injection-drug users support the need for effective outreach and testing for all of those enrolled in methadone and other drug treatment programs.

### **Survey of Childbearing Women**

The California Department of Health Services, Office of AIDS implemented a blind HIV seroprevalence study in 1988. The purpose of the study was to provide an estimate of the

prevalence of HIV infection among childbearing women in California. Specimens were collected from neonates born in hospitals during the third quarter of each calendar year. The specimens were stripped of identifiers, other than the mother's age, zip code, and race/ethnicity, and then tested for antibodies to HIV.

**Table 2-16. HIV Antibody Test Results, Survey of Childbearing Women, Orange County 1988-1995**

Year	Positive	Tested	Rate/10,000
1988	9	10,928	8.2
1989	2	11,997	1.7
1990	2	12,992	1.5
1991	5	13,252	3.8
1992	4	13,072	3.1
1993	6	13,370	4.5
1994	3	12,803	2.3
1995	3	12,778	2.3
TOTAL	34	101,192	3.4

As shown in Table 2-16, thirty-four infants were born to HIV-infected women in Orange County during the eight-year period of 1988 through 1995. It is important to recognize that approximately 30% of children born to mothers with serologic evidence of HIV infection actually have the disease. The remaining 70% represent children with maternal HIV antibodies only. In 1995, fifteen counties within California identified between 1 and 40 maternal infections. Orange County identified 3 infections during blinded testing that year, less than 1 (0.8) of every 1,000 neonates tested.

## Other Diseases of Relevance to the HIV Epidemic

Table 2-17 presents annual incidence of a number of diseases thought to be of relevance to the HIV epidemic. Trends in case reporting for the most recent ten-year period are shown.

**Sexually and Parenterally Transmitted Diseases** Gonorrhea cases reported in Orange County<sup>8</sup> have declined precipitously from a high of 7,561 cases in 1978 (case rate: 407.6 per 100,000 population) to a low of 435 reported cases in 1996 (case rate: 16.4). Cases increased slightly between 1998 (521) and 1999 (572), yet the 1999 case rate remains low at 20.5 per 100,000 population. The U.S. gonorrhea case rate for 1996 was 124.0. California's *Year 2000 Health Objective* for gonorrhea is to reduce the incidence to no more than 100 cases per 100,000 people. Orange County reached this objective in 1989.

Reported cases of primary and secondary syphilis<sup>8</sup> declined steadily since a major outbreak in Orange County in 1986 and 1987, when 605 and 415 cases, respectively, were reported. In 1999, 3 cases of early syphilis were reported, 24 cases were reported in 1998. The 1999 case rate was 1.2 per 100,000 population. The *Year 2000 Health Objective* for primary and secondary syphilis is 4.2 cases per 100,000 population.

<sup>8</sup> Source: County of Orange, Health Care Agency, Disease Control, 1999 Morbidity Reporting.

**Table 2-17. Other Diseases of Relevance to the HIV Epidemic**

<b>Disease/Condition</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
Gonorrhea	1496	1123	1220	1162	936	741	435	461	521	572
Primary/Secondary Syphilis	107	70	53	16	23	15	19	7	24	33
<i>Chlamydia</i>										
<i>Trachomatis</i>	2958	3148	3223	4197	4563	3303	2693	3292	3498	4893
Hepatitis B	107	115	107	73	62	83	69	73	90	55
TB	258	305	411	430	365	336	273	330	298	246

Orange County reached this objective in 1991. The U.S. 1996 case rate was 4.3. The decline in cases of gonorrhea and early syphilis in Orange County is believed to reflect the adoption of safer-sex practices in response to the HIV epidemic.

Since chlamydial infections were not made reportable in California until late 1989, the dramatic rise in cases between 1990 and 1994 is most likely a reflection of increasing recognition of this disease and improved reporting. Reported chlamydia cases declined in Orange County from 1994 to 1996. New, highly sensitive, non-invasive (urine-based) tests have recently become available which has led to a dramatic increase in both screening and positive tests. Cases increased 6% between 1997 and 1998 and 40% between 1998 and 1999 (from 3,498 to 4,893 cases).

Reported cases of acute hepatitis B have declined in Orange County over the most recent ten-year period. More than two-hundred cases were reported in both 1988 (249) and 1989 (215). Ninety (90) cases were reported in 1998 and 55 in 1999, a decline of 39%.

**Tuberculosis:** Orange County reported 246 cases of tuberculosis in 1999, 17% fewer cases than were reported in the previous year (298 in 1998). Case reporting peaked in 1993 with 430 cases reported, followed by decreases in each of the next three years (1994 through 1996)<sup>9</sup>.

TB in Orange County surpassed 200 cases reported annually in 1979 and continues to remain above that level. More than 3,000 cases of TB have been reported in Orange County in the past ten years (1990-99), up 21% over the approximately 2,500 cases reported during the previous ten-year period (1980-89). These increases are closely related to immigration from Southeast Asia, Mexico, and Central and South America.

Eighty-seven (87%) percent of all TB cases reported in Orange County in 1999 were in persons born in countries other than the United States; 38% of these from Vietnam, 29% from Mexico, and 10% from the Philippines. Only 41% of U.S. 1998 cases were foreign-born.

The 1999 TB case rate is 8.8 cases for every 100,000 Orange County residents. The annual case rates for 1997 and 1998 were 12.4 and 10.9, respectively. The 1999 case rate is 2.5 times California's *Year 2000 Health Objective* of 3.5 TB cases per 100,000 Californians.

<sup>9</sup> Tuberculosis Registry (SURVS-TB) County of Orange Health Care Agency, Disease Control, Pulmonary Disease Services.

Orange County TB case rates continue to be higher than U.S. rates, but slightly lower than the rates for California (except for 1993 and 1997). Orange County's 1999 TB case rate of 8.8 is higher than the U.S. 1999 rate of 6.4 and lower than the California 1999 rate of 10.9.

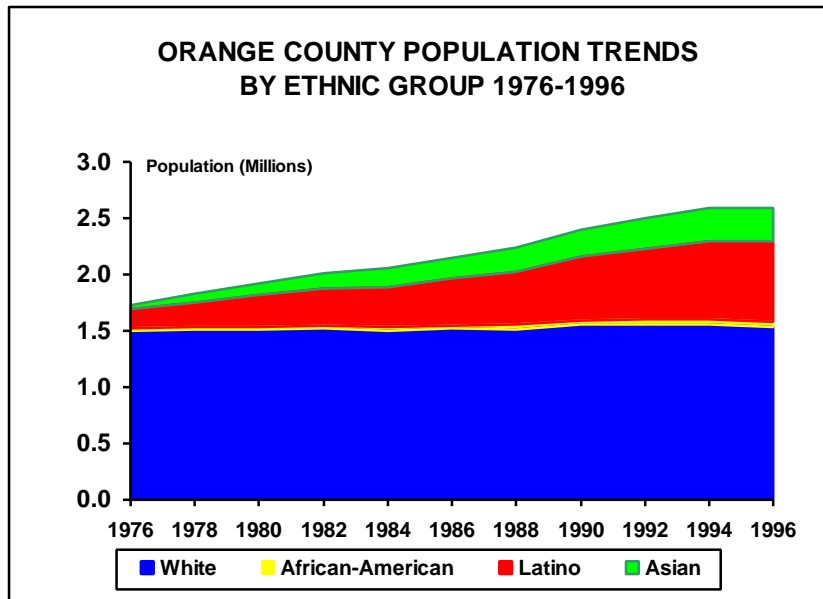
TB/HIV co-infection was reported in less than 4% of Orange County TB cases in each of the last five years (1995-99) and in 5% of cases in 1994. In contrast, TB outbreaks among persons with HIV have been reported in many large U.S. cities such as New York, where almost one-half (46%) of 1997 TB cases between the ages of 25 and 44 were co-infected. Only 5% of Orange County 1999 cases in this same age group were co-infected.

Fifteen persons with HIV infection were identified through confidential HIV testing at the Health Care Agency's Pulmonary Disease Clinic from January 1991 through December 1998. A total of 1,135 persons were tested during this period for a positivity rate of 1.3%.

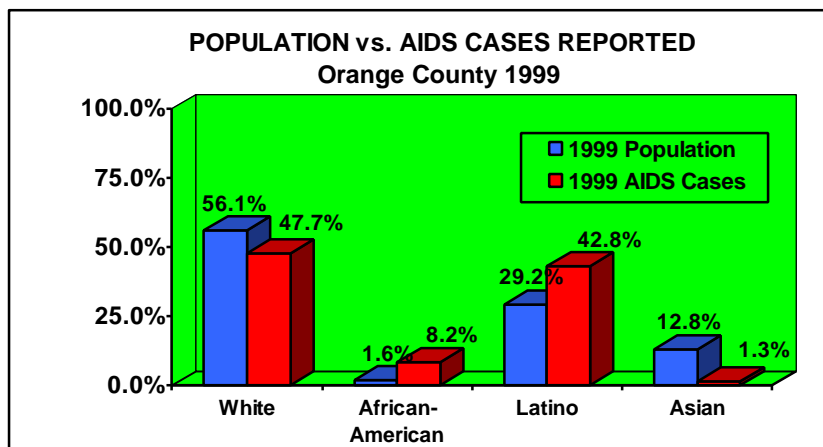
Pulmonary tuberculosis was added as an AIDS indicator condition when the AIDS definition was revised in 1993. In Orange County, pulmonary TB has been diagnosed in 1% of cumulative AIDS cases (66 of 5,442) reported through December 31, 1999.

## **Conclusion**

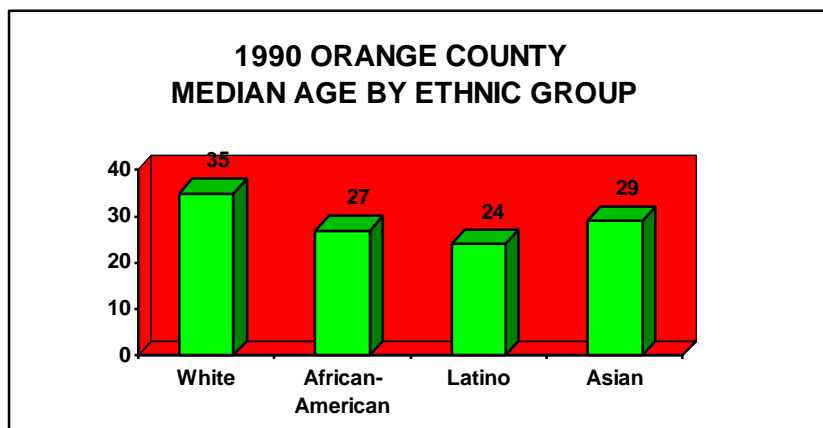
The HIV epidemic came to Orange County in 1981. The impact was immediate and dramatic in the local gay community, especially in gay, white males. Over the years, the HIV epidemic in Orange County has evolved to include increasing proportions of females, ethnic minorities, and persons infected through injection-drug use and heterosexual contact. HIV testing data continue to support the need for effective prevention education, counseling and HIV testing of those persons who engage in behaviors that place them at increased risk for HIV infection. The high-risk groups in Orange County include men who have sex with men; injection-drug users and their sex partners; and female sex partners of bisexual men.



**Figure 2-1. Orange County Population by Ethnic Group**



**Figure 2-2. O. C. Population vs. Reported AIDS Cases**



**Figure 2-3. Median Age by Ethnic Group**

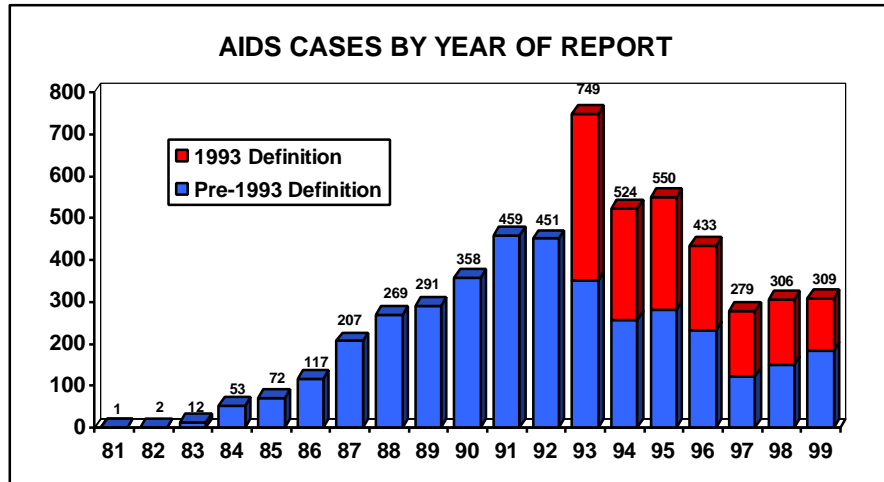


Figure 2-4. AIDS Cases by Year of Report

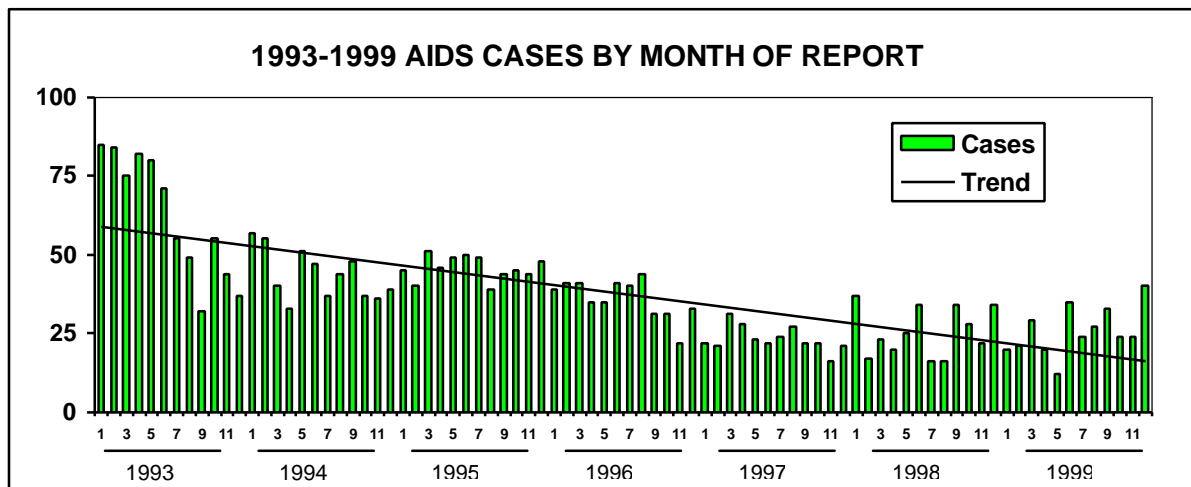


Figure 2-5. 1993-1999 AIDS Cases by Month

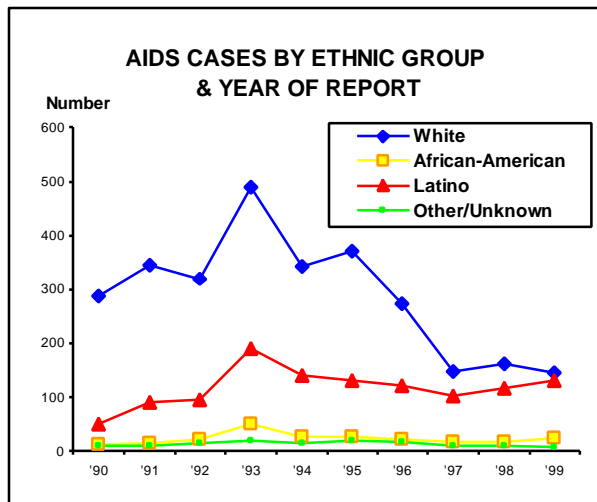


Figure 2-6. AIDS Cases by Ethnicity #

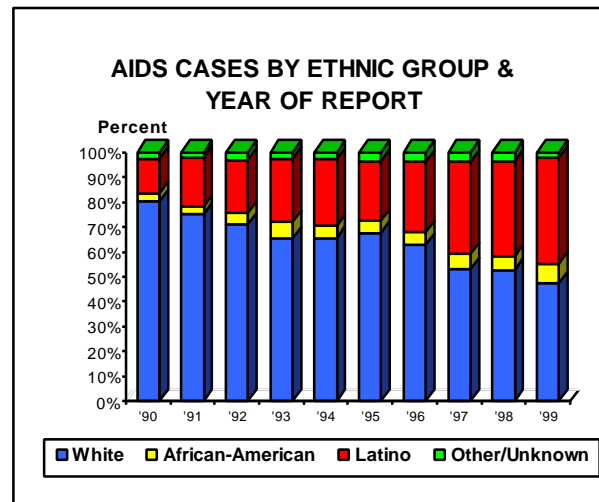
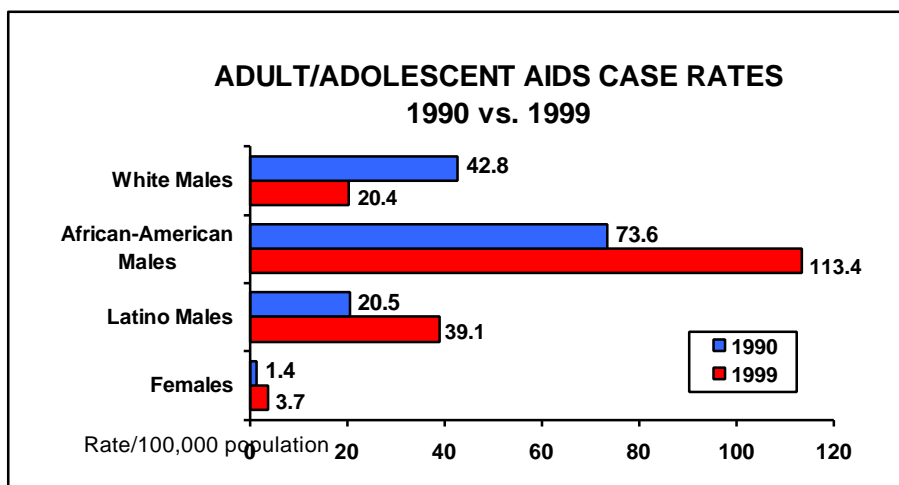
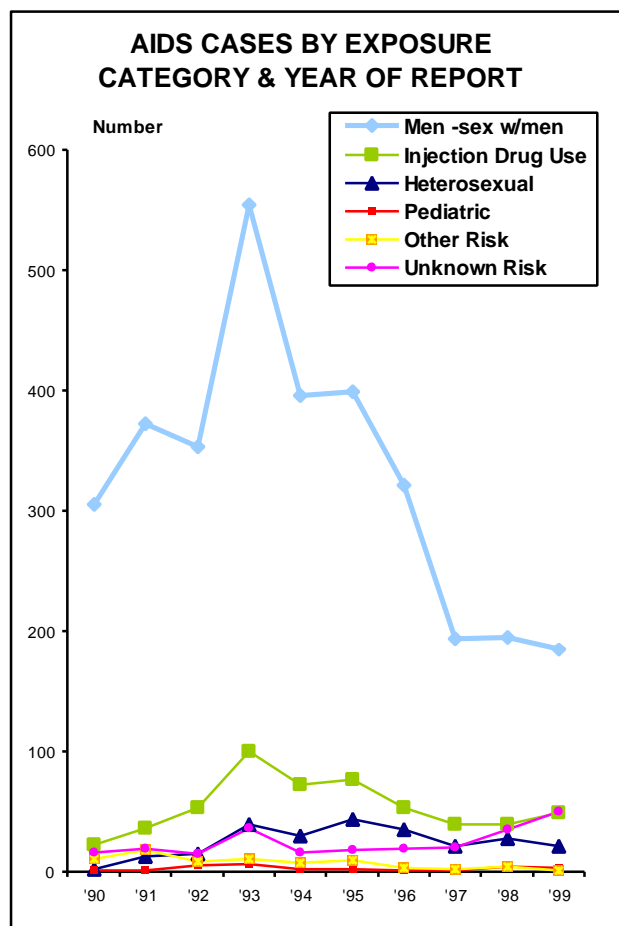


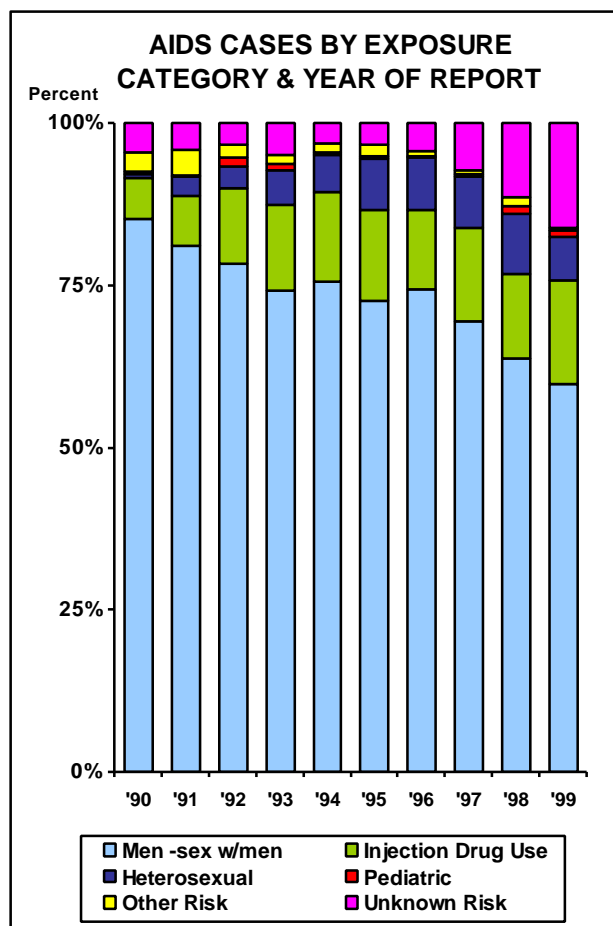
Figure 2-7. AIDS Cases by Ethnicity - %



**Figure 2-8. 1990 vs. 1999 AIDS Case Rates**



**Figure 2-9. AIDS Cases by Exposure -#**



**Figure 2-10. AIDS Cases by Exposure - %**

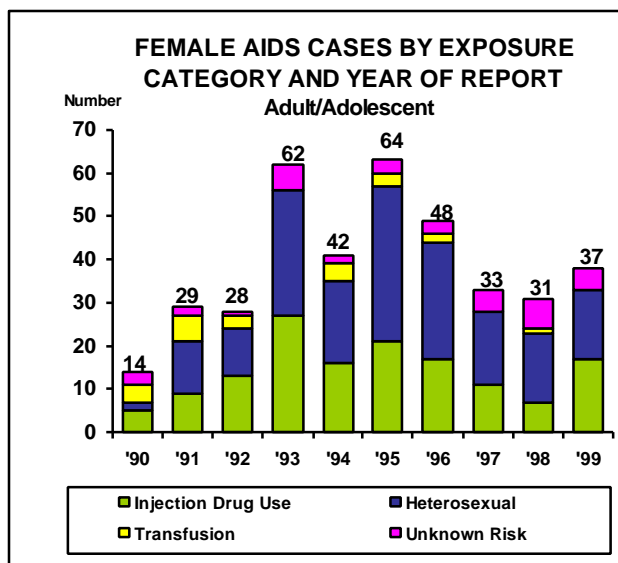


Figure 2-11. Female AIDS Cases by Exposure

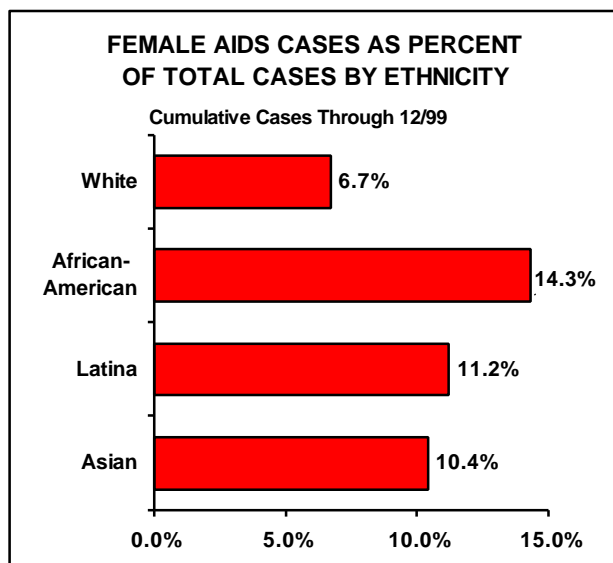


Figure 2-12. Female Cases - % by Ethnicity

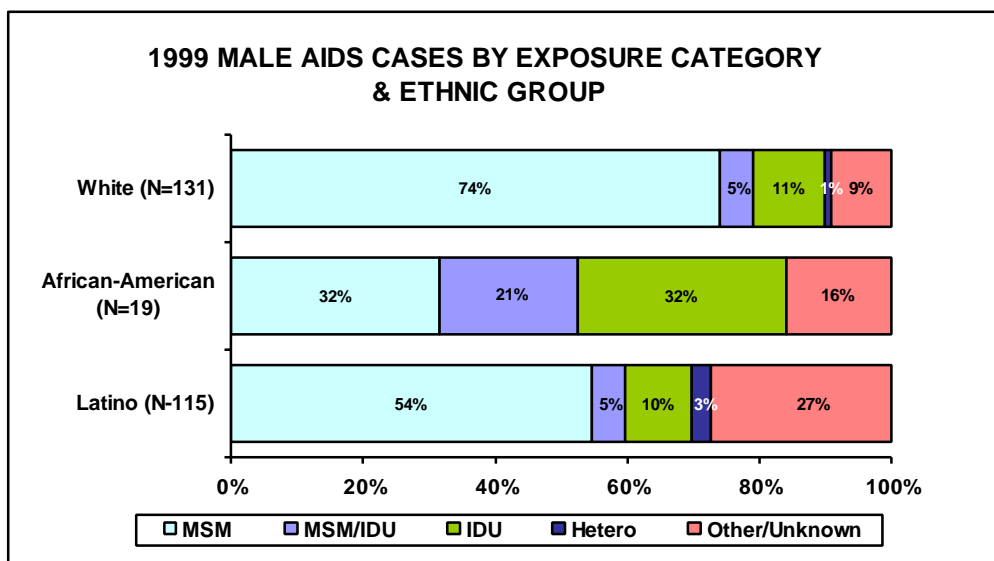


Figure 2-13. 1999 Male AIDS Cases

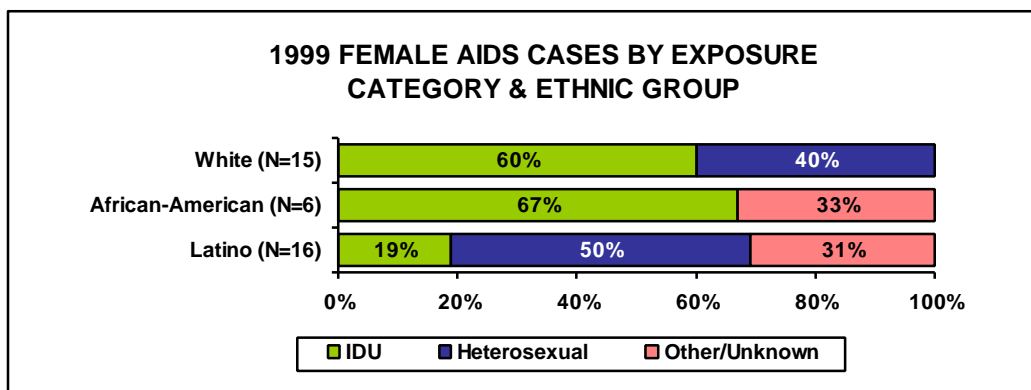
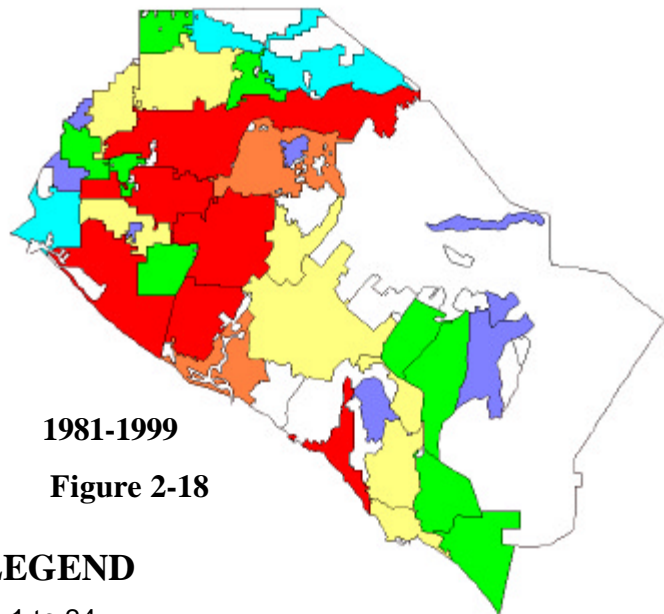
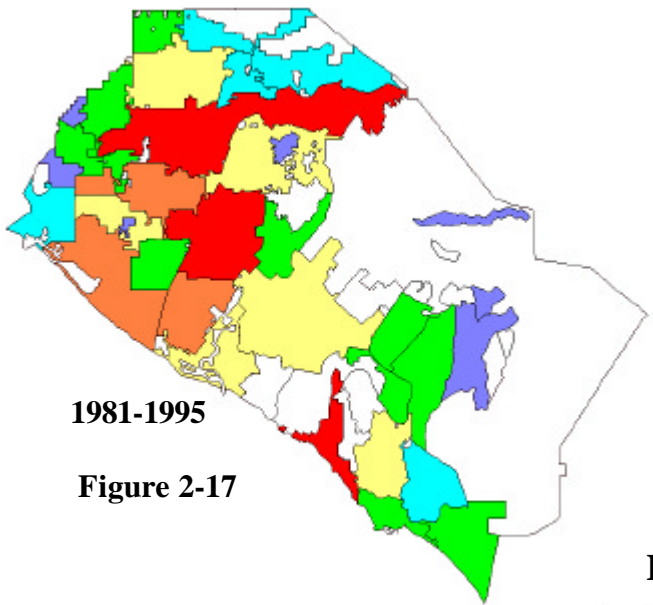
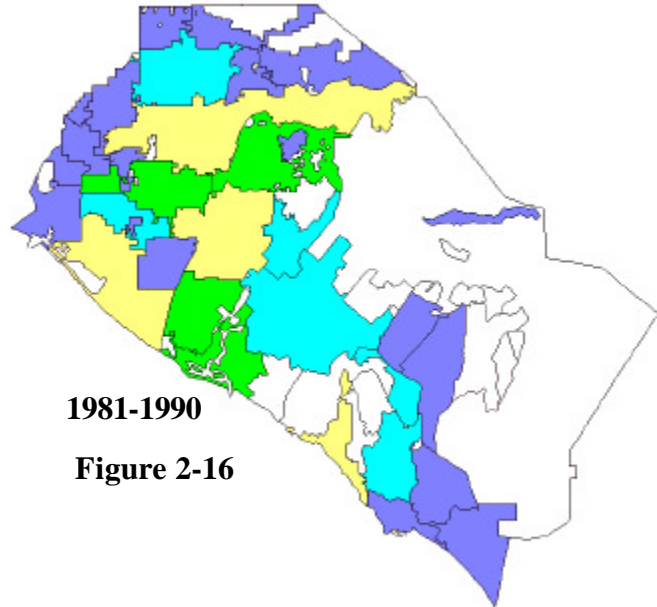
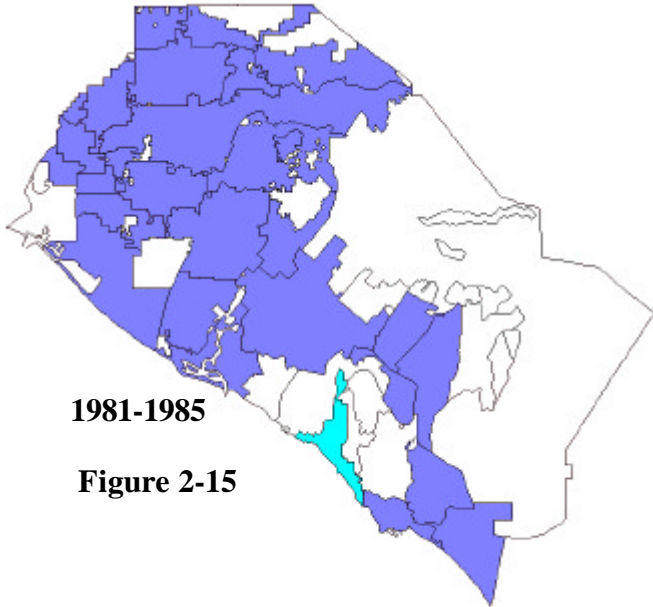
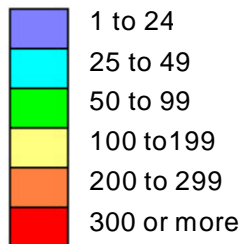


Figure 2-14. 1999 Female AIDS Cases

# ORANGE COUNTY, CALIFORNIA AIDS CASES BY CITY

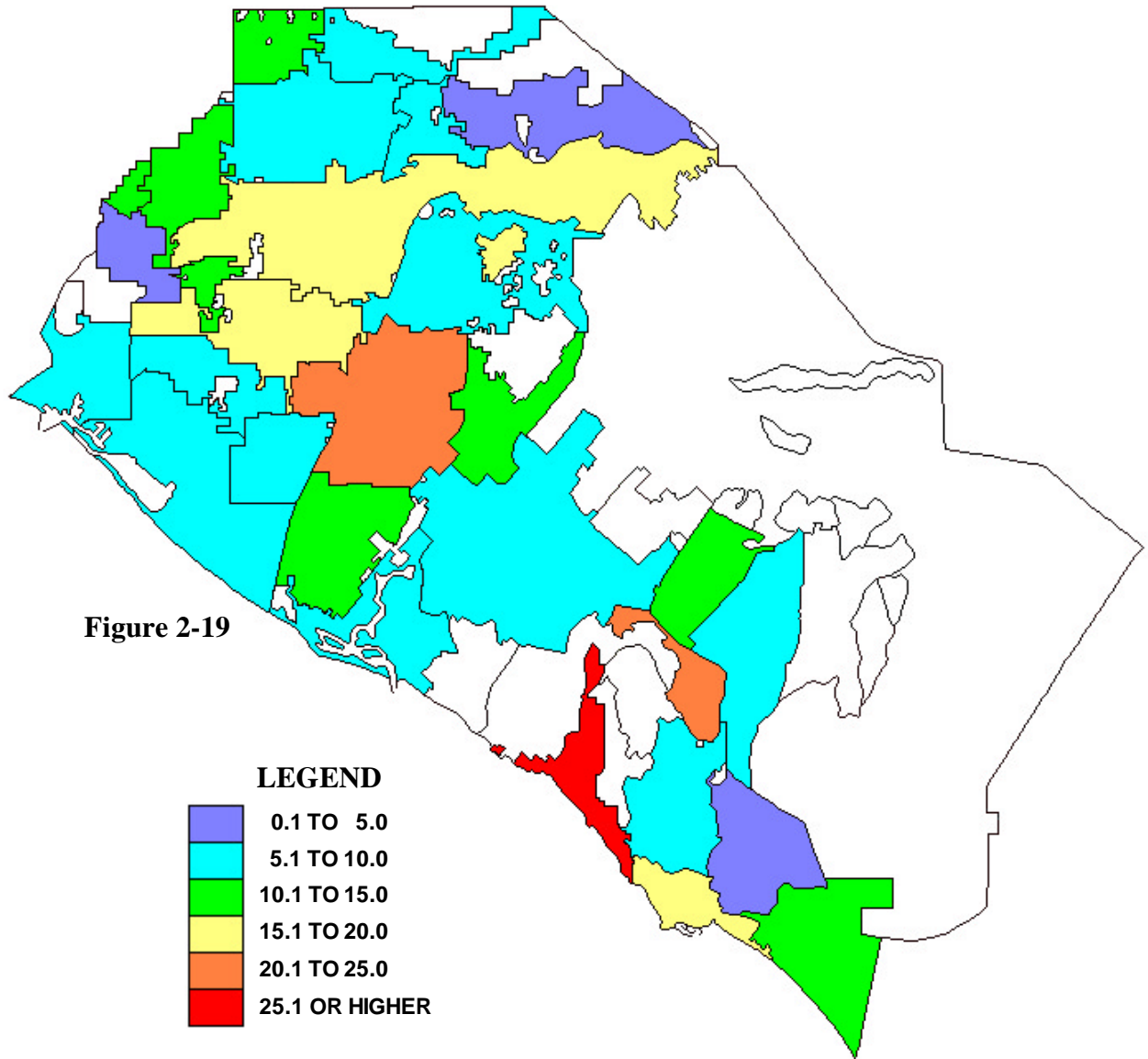


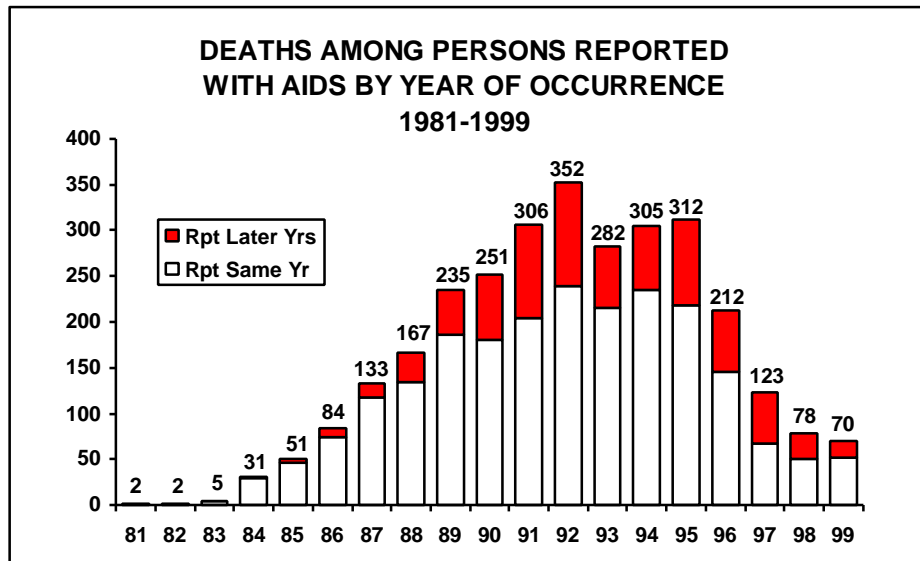
## LEGEND



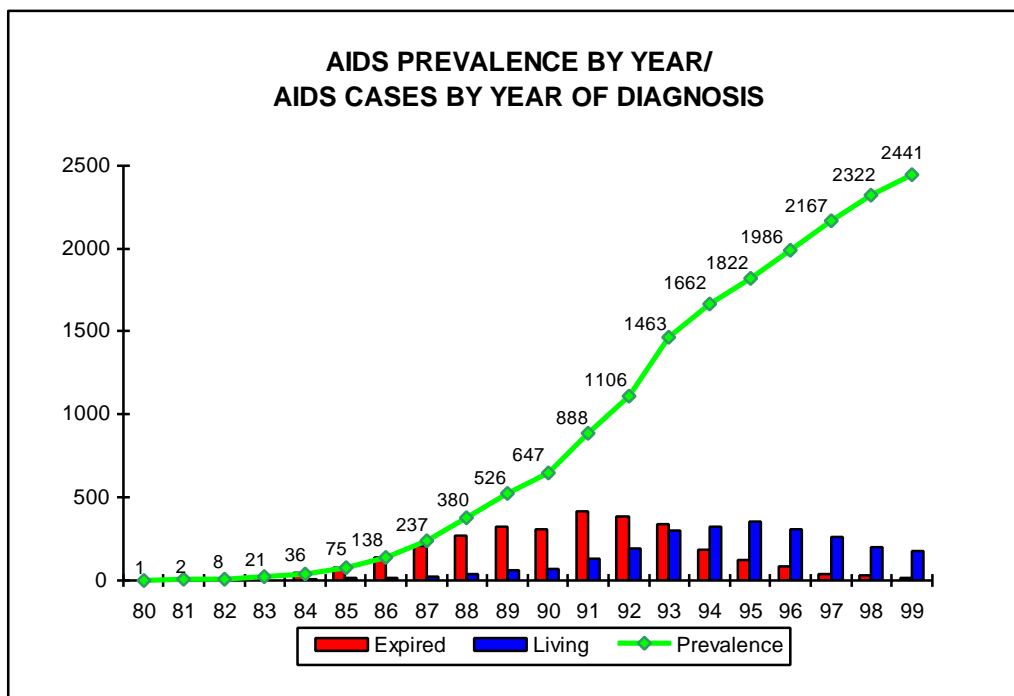
# 1999 AIDS CASE RATES BY CITY

RATES/100,000 POPULATION (INCORPORATED CITIES  
ONLY)



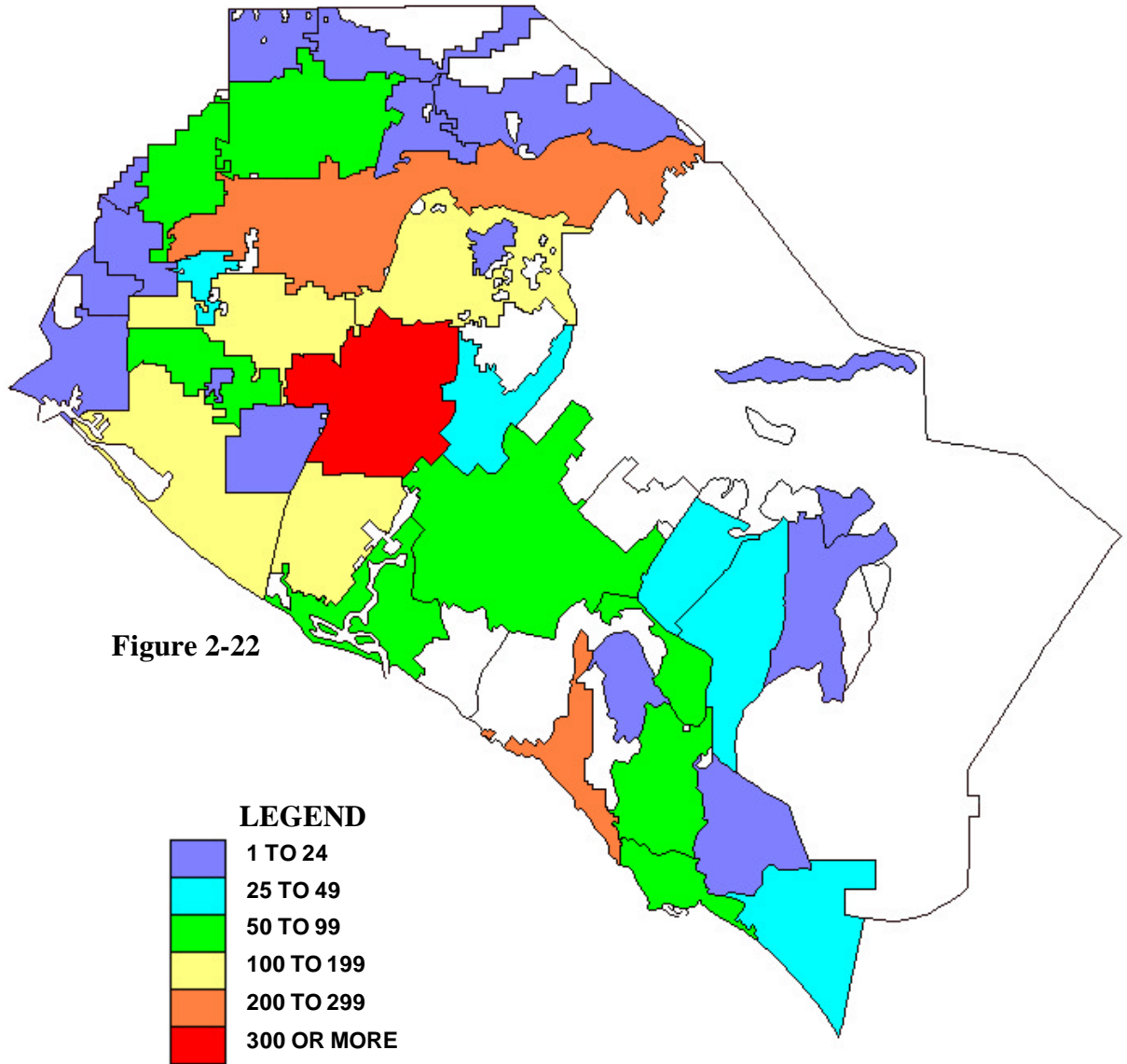


**Figure 2-20. AIDS Deaths by Year of Occurrence**



**Figure 2-21. AIDS Prevalence & Cases by Year**

**ORANGE COUNTY, CALIFORNIA  
PERSONS LIVING WITH AIDS AS OF 12/31/99**



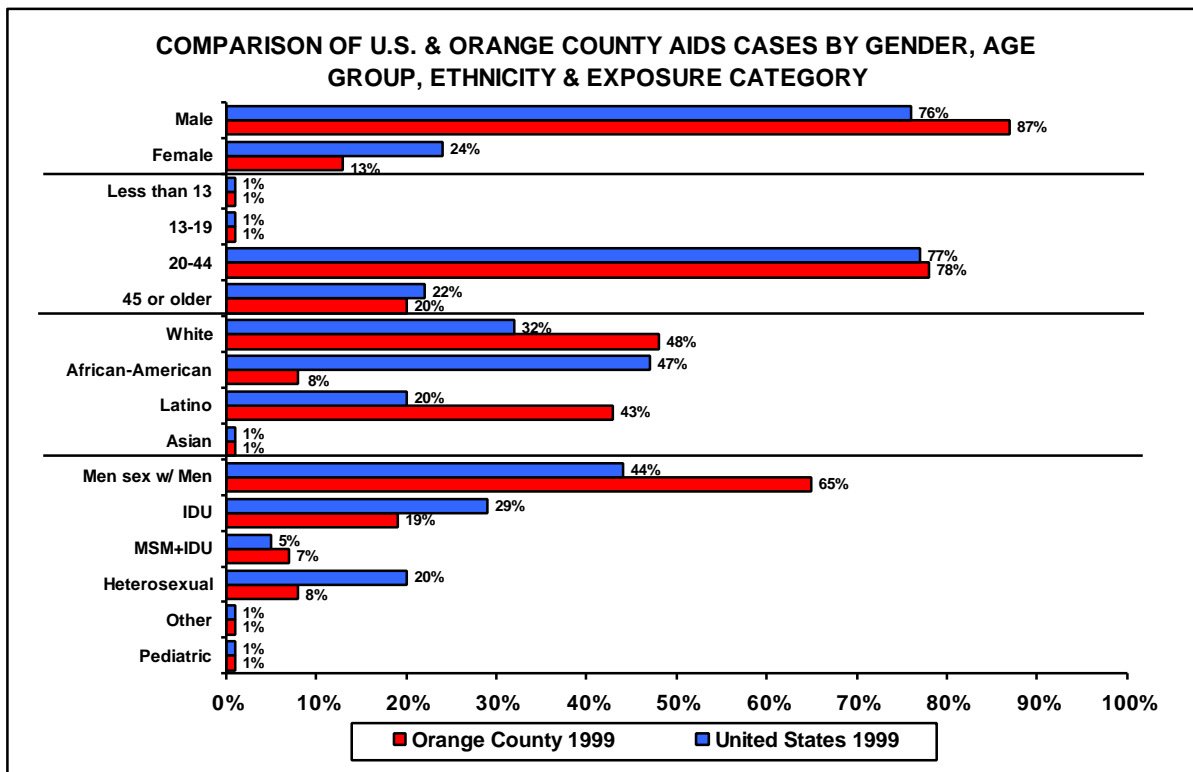


Figure 2-23. U.S. & Orange County AIDS Case Demographics

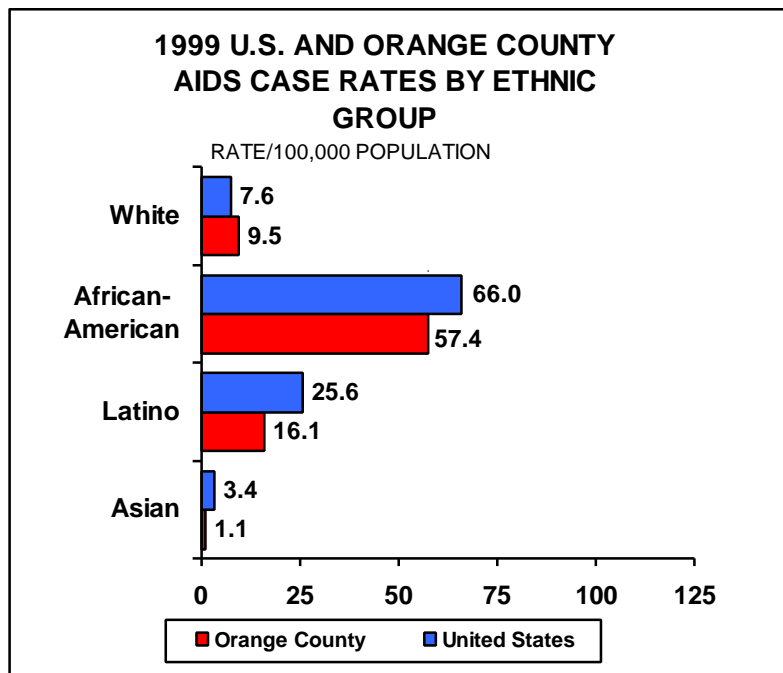


Figure 2-24. U.S. and O. C. AIDS Rates by Ethnicity